

## Many casualties in public house blast at Caterham

People were seriously hurt and many more received minor injuries in an explosion at a public house frequented by soldiers at Caterham, Surrey, last night. Police found the remains of a suspected paraffin bomb in the public house. All clubs and public houses in the area were evacuated.

Confrontation between the Government and the Protestant majority in Northern Ireland is inevitable if Westminster rejects the constitutional Convention's final report, Mr Rees, the Secretary of State, was told by "loyalist" politicians yesterday.

## Suspect package found in social club opposite

Reporters thought the explosion, caused by a bomb, had the ground floor of the house at Caterham last night. At least 10 people were seriously injured and many others, including soldiers, were hurt. The explosion occurred at about 11.30 p.m. at the public house named the "Caterham Arms", which is among soldiers based in the barracks. Several men of the 1st Welsh Guards were injured.

The suspect parcel was found in the Caterham Arms, opposite the public house. A witness said that most of the injured appeared to be soldiers or their friends. Last October, military establishments throughout Britain were told to tighten security as police searched for an IRA "active service unit" believed to be responsible for planting bombs in two public houses in Guildford, Surrey. The explosions killed five people and injured 65, including 43 army staff from camps near by.

The Caterham explosion was the first bombing in Britain since January, when six bombs went off outside buildings in London and Manchester. It was the first public house bombing since the two Birmingham public houses were wrecked in November last year and 21 people died. In November, a soldier and a barman died in a bomb explosion at the Kings Arms public house in Walsworth, London. Thirty-five people were injured. The Walsworth public house was popular with staff from the Royal Artillery barracks opposite. The barman was killed when he dived on the 10lb bomb seconds after it was hurled through the window of the public bar. It was after the Birmingham

## National Institute calls for early reflationary measures

By Tim Congdon

The "startling nature" of recent developments in output and employment calls for early, but modest reflation, the National Institute's *Economic Review* says today. This is necessary to counter weak demand, declining production and an "unexpectedly deep and extensive recession".

The institute has revised sharply downwards its forecast for the level of economic activity. In its May Review it was expecting a 1.6 per cent rise in gross domestic product this year; in its present review it is expecting a 2 per cent fall. The less optimistic assessment of output prospects is also reflected in the institute's forecasts of unemployment. In its May Review the one million

total was thought to be likely by the end of the year. Now 1.25 million is forecast by this winter and between 1.3 million and 1.5 million by the end of 1976. But there is encouraging news in a lower forecast of inflation. The retail price index will be around 25 per cent higher in the final quarter of 1975 than in the fourth quarter of 1974. But the rise throughout 1976 is forecast to be down to 12-13 per cent.

The institute attributes the slowdown to the introduction of the £6 a week pay policy which it assumes will be generally successful. It describes the policy as "extremely rough and ready" and calls for "a more efficient monitoring system" with "a more complex system of restraint on wage and salary

increases", but it nevertheless strongly welcomes the policy as "the most important element in the Government's strategy". The essence of this strategy, in the institute's view, is "to wait for the upturn in the world economy to raise United Kingdom exports and thereby set in train renewed growth of output". But it gives a warning that the world upturn is already late and forecasts that world trade volume will fall by an extremely large 12 per cent this year, with only a 5-6 per cent rise in 1976.



Mr Stonehouse speaking to reporters outside Brixton prison after his release last night. He criticised the bail system.

## Mr John Stonehouse is released on bail

By Martin Huckerby

Mr John Stonehouse, MP, left Brixton prison on £40,000 bail last night after spending 80 days in custody in Australia and Britain. After his release he spoke of the "iniquities of the bail system". He had been granted bail of £10,000 in his own recognizance at Bow Street Magistrates' Court yesterday morning, but was returned to Brixton because his lawyers could not find two additional sureties of £15,000 each immediately.

Mr Michael O'Dell, Mr Stonehouse's lawyer, who said the granting of bail had come "as a complete and utter shock", set about raising the sureties in time to beat the 10 p.m. release deadline at the prison. He arrived at the prison late yesterday evening with the surety certificates. Forty minutes later, at 8.30 p.m., an impassive Mr Stonehouse was driven through the door of the prison. After the car had forced its way through a crush of photographers and reporters, he stepped out of the car, to say: "I'm very grateful to the

many friends outside, many of them unknown to me, who have come forward." He said his case had brought the whole issue of bail out into the open and people should turn their attention to the iniquities of the bail system. Of more than a thousand men in Brixton prison, "at least five hundred, by my survey, should be out on bail with me tonight". He asked that they give men in other prisons the same considerations as himself. Mr O'Dell said, before going into the prison, that he could not name the sureties. They wanted complete privacy. Mr Stonehouse was driven to his home in Sanicroft Street, Kennington, not far away, and shortly afterwards emerged to criticize again the "ugly charge of the bail system". He added: "The reasons for giving me bail today were valid weeks ago."

"I hope my experience will draw attention to the plight of these people (the men in Brixton). I want to say this to England: 'Wake up to these iniquities and do something about it.' He refused to answer questions, and said that his full story would come out when he made a statement in the Commons. Bail was granted by Mr Kenneth Barracough, acting Chief Metropolitan Magistrate, who had refused it at the previous hearings, before Mr O'Dell had begun to make what would have been his eighth application. Mr O'Dell told me afterwards: "It seems the decision to grant bail had already been made before the hearing. I don't know by whom. We were caught on the hop." The police are understood to have rejected one surety immediately after the hearing, and lawyers then began attempts to find friends and sympathizers of the MP who had promised to stand surety. Mrs Stonehouse said later that she expected her husband to address the Commons soon after it reassembles in October. He would also want to meet his constituency party in Walsall, though she was not sure whether they would want to see him. There were indications from the constituency yesterday, however, that a meeting might be arranged. Bail was granted on condition that Mr Stonehouse, who has been in prison since his return to Britain from Australia last month, reports daily to the police, except on Sundays, and that he lives at an address to be notified to the police. Mr Stonehouse was remanded until September 17, when he will appear with Mrs Sheila Buckley, his secretary who is free on bail. He is awaiting trial on 21 charges of theft, forgery and fraud. Mrs Buckley faces five charges of theft and one of conspiracy. Miss Jane Stonehouse, who was in court when her father appeared on remand, said: "He can now get on with preparing his defence, which has always been impossible while he has been in prison. I have absolutely no idea why he has suddenly been granted bail. It seems that the establishment has to be pushed into a corner by public opinion before it actually moves."

## Loyalists' say clash is inevitable

By Stephen Walker

"Loyalist" politicians yesterday said Northern Ireland, but not Britain, was the cause of the inevitable clash between the Government and the Protestant majority in Northern Ireland. They said the Convention was inevitable if the Government's final report was by Westminster. Loyalist politicians yesterday said that the Convention was inevitable if the Government's final report was by Westminster. Loyalist politicians yesterday said that the Convention was inevitable if the Government's final report was by Westminster. Loyalist politicians yesterday said that the Convention was inevitable if the Government's final report was by Westminster.

In the loyalist coalition Vanguard members have the closest connections with armed Protestant paramilitary groups. The politicians yesterday said that the Convention was inevitable if the Government's final report was by Westminster. Loyalist politicians yesterday said that the Convention was inevitable if the Government's final report was by Westminster. Loyalist politicians yesterday said that the Convention was inevitable if the Government's final report was by Westminster.

Convention has drawn up its report, Mr Rees said: "I have given a great deal of thought as to what we might do after that. We could put ideas forward ourselves which the Convention could look at. Also, under the law, there is room for a plebiscite on the matter." Throughout the interview, Mr Rees emphasized that any lasting solution was still up to the local people and politicians, not the British Government. As the interview was being screened, Roman Catholic and Protestant politicians were breaking up after another short session of the private inter-party talks on the structure of a new government. Once again no progress was achieved. Mr Rees's difficulties have been increased by his assurance that direct rule will continue whatever the outcome of the Convention. That has not dampened the anger and frustration in loyalist circles and it has upset the Provisional republican movement. Mr Seamus Loughran, northern organizer of Provisional Sinn Féin, said acidly that the assurance was "a dangerous statement which is typical of a British politician".

## Haile Selassie's son demands an inquiry into the causes of his father's death

By Our Foreign Staff

Haile Selassie, former emperor of Ethiopia, who was deposed in a military coup on September 12, last, died in his sleep in Addis Ababa yesterday aged 83. A statement by Ethiopia radio said that he died of an illness after a prostate gland operation two months ago. He was found dead by attendants yesterday. His son, Crown Prince Asfaw Wossen, in a statement issued in London where he is living in exile, accused the ruling military authorities of refusing to allow the former emperor to be cared for by his family after his operation. He had

been kept isolated from his friends and family since his deposition, and the claim by the government that no physician could be found when he was taken ill on Tuesday was "beyond credibility". Prince Asfaw Wossen demanded a post mortem examination by international doctors and the Red Cross. Reports from Addis Ababa said that the reaction of Ethiopians to the death of the former emperor was unemotional. Five days ago, Haile Selassie's daughter and granddaughter were allowed to visit him because of his failing condition, reports from Ethiopia said.

The British Government paid tribute to the former emperor in a statement issued by the Foreign Office yesterday. The news was received "with great sadness" and the former emperor was described as a great statesman of his time. "We particularly recall his courageous opposition to fascism and the many years he spent among us in exile from his country," the statement said. The Queen has sent a private message of sympathy to Crown Prince Wossen. Leading article, page 15  
Obituary, page 16

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Letters: on university finances from Professor David Lowenthal and Professor A. M. Ross; on agricultural tied cottages from Mr Montague Keen  
Leisure: No early reflation; Haile Selassie: Mice-makers of Munich  
Art, page 11  
Irving Wardle on *Pilgrim* and William Mann on the LFO with Gillian, both at Edinburgh Festival; Charles Lewsen on *Happy End* (Lyric Theatre); Alan Coren on *Oil Strike North* (BBC)

## Ion Romania on

is to make an... to Romania from 6 to 18, it was yesterday. The Prime going at the inv... President Ceausescu, the Roman... Minister. He will led by Mrs Wilson... be the first visit Prime Minister to... nce the Second... but Mr Wilson has as Leader of the... ion was first ex... 989 and repeated... dent Ceausescu... ters in June.

## Warning of risk to mankind in space shots

Hidden dangers in the search for life in other parts of the universe were suggested by Sir Bernard Lovell, the radio astronomer, last night. Giving his presidential address at the opening of an annual meeting of the British Association for the Advancement of Science, Sir Bernard urged scientists and technologists to re-examine their responsibilities to society. Page 2

## Sinai accord held up by technical details

The proposed Sinai agreement is being held up by "technical problems", but apart from these Dr Kissinger, the American Secretary of State, is thought to have a draft generally acceptable to both Israel and Egypt. Dr Kissinger yesterday held talks in Alexandria with Egyptian leaders, who were later reported to be optimistic. Page 4

## Rhodesia warning

Bishop Muzorewa, the Rhodesian nationalist leader, yesterday warned tribal chiefs against negotiating with Mr Smith, the Prime Minister, now that the constitutional talks had broken down. It was "playing with fire", he said. Page 4

## Pearl raising motor premiums by 17 pc

Pearl Assurance is again increasing its motor insurance premiums from October 1 and may move towards quarterly premium adjustments. Pearl last increased rates in June by 14 per cent and now plans a 17 per cent rise. Page 24

## Task for press inquiry

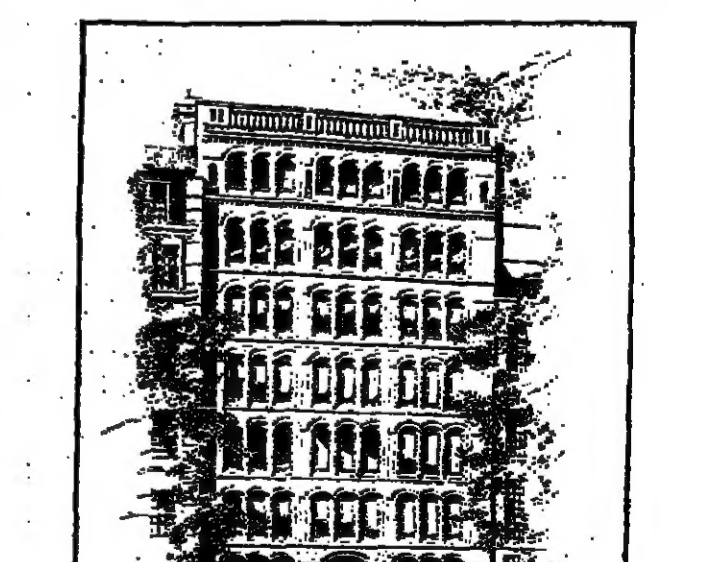
The Royal Commission on the Press is to investigate industrial relations in national and provincial newspapers. Page 3

## Tax laws outcry

More than a hundred Swedish MPs representing all parties yesterday demanded law reform after disclosures that leading citizens pay very low income taxes. Page 3

## Furniture adds to teacup storm

As anger grew among MPs over the £20,000 House of Commons order for German chinaware, a report from the Commons Services Committee yesterday disclosed accelerating losses in the refreshment department of the House. In another development, Mr Philip Goodhart, Conservative MP for Bromley, Beckenham, wrote to Lord Ryder of Eaton Hastings, of the National Enterprise Board, complaining that the board had bought office furniture from Denmark. Page 2



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## HOME NEWS



ing for the best giant bloom at the National Dahlia Society show at Westminster yesterday. Report, page 16.

## Press inquiry to look at labour relations

new techniques are not only necessary but feasible." Mr Wade, who represents Fleet Street's printing craftsmen, argued that those objectives could be achieved without compulsory redundancies. If there was "realism and good will" on both sides, he added, "There is not much time left if we are to avoid the closure of one or more national newspapers and the large-scale redundancies that would follow. Unless we are prepared to grasp this nettle there is little or no chance of securing the financial assistance from the Government which will be necessary if Fleet Street is to make the transition from Caxton to computer."

Turning to the fortunes of the newspaper's management, Mr Wade criticised the newspaper's management for its "quite arbitrary" ultimatum that the paper would cease publication unless nearly a third of its staff were made redundant. The paper had lived to fight again, but whether it would succeed against the present background of economic recession and falling circulation remained to be seen.

Conclusions welcomed: Mr John Dixey, director of the Newspaper Publishers' Association, said: "No one who cares for Fleet Street and is committed to the objective of maintaining the same number of national newspaper titles into the foreseeable future can possibly quarrel with Mr Wade's conclusions (the Press Association reports)."

Anyone who knows the Fleet Street scene—and that includes especially all employees of national newspapers—recognizes that the present number of people employed on national newspapers must reduce."

## Journalists seek pay for period of stoppage

By Christopher Thomas

Labour Staff

Discussions on back pay for more than two hundred journalists who were dismissed seven weeks ago at The Birmingham Post and Evening Mail were adjourned last night without a settlement.

The management said later: "When people break their contracts of employment, and in consequence are no longer employed, it would be a principle of vast importance for every industry. If the management conceded that they should still be paid. That would be getting towards the Marxist philosophy that strikes must be self-financing."

A conditional agreement was reached to go to arbitration under the guidance of the Advisory, Conciliation and Arbitration Service on the question of back pay. But the office branch of the National Union of Journalists first wants management assurances about staff levels and future redundancies.

Originally, 250 journalists were dismissed for meeting during office hours and disrupting production in a dispute over pay. Some have since found other jobs and others have retired early, and union officials estimate that the number has dropped to about 230.

Production of the newspaper was disrupted yesterday for the second day over rejection of a pay and conditions claim by members of the National Graphical Association. About 100,000 copies were lost.

## 'Mastermind' winner for 'Supermind'

By Our Arts Reporter

Competitors in the BBC's Mastermind programme, which returns to television next week, will have the added incentive this year of an extra trophy, the "Supermind" award.

As it is the fourth year of the contest (the first three were won by women) there will be an additional programme bringing all four winners together, and that will take place at the end of the series.

After the last series 2,500 people applied to take part this year. They include an émigré Russian, an American ex-Oxford, 13 teachers, a lorry driver, a miner, a barrister, a factory hand, two priests and a sheet metal worker.

Other subjects range from Athens in the fifth century BC to British steam locomotives. Of those who applied, 350 were selected for auditioning. The

48 contestants will appear in 17 programmes beginning next Thursday.

Last autumn the programme attracted audiences as large as those for popular drama and comedy series. The rules are as before: questions on specialist subjects followed by a general knowledge round.

Those who reach the finals will have to find a second specialist subject. The new Mastermind trophy will be a crystal glass bowl with the Nine Muses etched on its surface, with crystal glass goblets for the runners-up. For the "Supermind" another piece of glass has been commissioned.

Brain of Britain: Miss Winifred Lawson, a retired teacher, of Sellywood Road, Bournville, Birmingham, yesterday won the final of BBC Radio Four's national contest Brain of Britain 1975 (the Press Association reports).

## Russian child in heart operation leaves hospital

Irina Chudnovskaya, aged nine months, the Russian child who had a "blue-baby" heart operation in London, left Brompton Hospital, Chelsea, yesterday. Her condition was very satisfactory.

A doctor said that although she was able to fly home to Leningrad she would remain in the London area until Mr Christopher Lincoln, the consultant who performed the operation, returned from Brazil shortly and saw her.

She is the first Soviet child to benefit from a Soviet health agreement signed by Mr Wilson and Mr Kosygin in Moscow in February.

When she was flown to London with her mother on August 8 for the operation her life was in danger. Her heart defect meant that she suffered from lack of oxygen, which made her blue.

Mrs Galina Chudnovskaya, aged 28, her mother, is married to a physician. They have another daughter, aged five.

## Mrs Thatcher to visit oil rig

Mrs Thatcher, Leader of the Opposition, is to inspect a North Sea oil rig during a four-day visit to Scotland early next month.

She will fly by helicopter to the exploration rig Sea Quest about 150 miles off the Aberdeenshire coast and will fly over production platforms in BP's Forties field.

## Clearing rubbish cost £190,000

The troops who cleared the streets of Glasgow after the dustcart drivers' strike earlier this year will cost local ratepayers £191,912, the district council's clearing committee was told yesterday that the bill included manpower and vehicles.

The 1,200 troops worked in the city's streets for three weeks, clearing heaps of refuse.

## Channel attempt fails

Miss Stella Taylor, aged 39, an American, returned to Dover yesterday after failing to become the first woman to swim the Channel both ways. She reached France in 18hr 15min but was forced by rough seas to abandon the return attempt.

## Combined effort to aid the homeless

Shan Chatterjee

10 borough councils in Greater Manchester Metro-County have been asked to form a joint committee to deal with the growing problem of homelessness in the biggest population concentration outside London.

Greater Manchester for the Homeless and (Chair) has sent copies of the report to all boroughs to help more boroughs help more people. The report says, "We have greater numbers of homeless people than any other area in the country."

It was both silly and counter-productive for the Government to pretend otherwise: "If only

## Cabinet leaflet misleading, Mr Whitelaw declares

By Our Political Correspondent

The Government's pamphlet on its counter-inflation policy was in one respect a misleading document, Mr Whitelaw, deputy leader of the Conservative Party, said last night.

"Pay restraint cannot by itself amount to a counter-inflation policy, as it is now widely recognised. This Labour Government has been and is being profligate in spending our money, taxpayers' money. Public expenditure has got to be cut, and cut severely, if the attack on inflation is to succeed."

It was both silly and counter-productive for the Government to pretend otherwise: "If only

## AUEW chief's call to back £6 pay limit may fail

By Tina Jones

Mr John Boyd, general secretary of the Amalgamated Union of Engineering Workers, who is regarded as a moderate, has called on his members to co-operate with the Government in its counter-inflation policies.

His call, in the latest edition of the union's journal, is unlikely to sway AUEW delegates to the TUC congress at Blackpool next week. They firmly oppose the policies, and intend to use their 1,400,000 block vote against the proposed £6 flat-rate pay increase. The Technical, Administrative and Supervisory Section (Tass) branch of the AUEW has a motion down specifically rejecting any income policy based on wage regulation.

But Mr Boyd writes: "No one in Britain can contract out of his personal responsibility to make a contribution to our country's recovery. We must be builders, not demolition experts in the present crisis."

He will underline his views at the TUC General Council meetings today and tomorrow in Blackpool. It will be almost his last opportunity to try to influence the labour movement's top policy body. In June, the union nominated Mr Reginald Birch, a Marxist, to replace him.

The decisions by the TUC and the Labour Party conference must be progressive, Mr Boyd says. But such decisions must be symptomatic of the thinking and feelings of the people, particularly trade unionists.

## Urged for prisoners facing jail discipline charges

Reporter

Prisoners facing disciplinary charges should receive help in their defence as an initiative in three or four Home Office work-recommendations in a bished today.

The working party on disciplinary charges in prisons that in disciplinary charges should be referred to the aid of visitors the should ask the whether he would like to help in preparing a response from outside the establishment could be expected to know the cases there and the to the case.

The working party concludes that it should remain the task of the prisoner to present his own defence, but Dr J. E. Harris, chairman of the Ley Hill prison board of visitors, dissents from the majority on the point.

He writes: "Whatever pains the chairman takes himself to offer assistance to the prisoner and to reduce the formality of the proceedings, an appearance before an adjudicating panel must leave the prisoner with a feeling of isolation, particularly if he himself is dull or inarticulate."

Dr Harris suggests instead that a member of the board of visitors should be appointed as "the prisoner's friend" in disciplinary proceedings.

The working party says a blanket loss of all privileges is inappropriate. It suggests that the loss should be confined to privileges that have been abused. Removal to punishment cells or a segregation unit should be reserved for particularly serious offences.

Although the working party believes that punishments should be more consistent, it says it would be "artificial and arbitrary to purport to operate a system under a standard tariff which disregarded these essential differences between individual cases."

The report says there is an erroneous assumption that adjudications form a large part of the responsibilities of members of boards of visitors. In fact, in Wakefield prison,

with 702 prisoners, only 27 came before the board charged in disciplinary proceedings in 1974. In Wandsworth, where there were 88 cases.

Last year 1,588 prisoners came before boards of visitors on disciplinary charges. Of the total of 1,944 charges made prisoners pleaded not guilty to 1,319; 64 prisoners were cleared.

The working party was set up in May, 1973, after changes in the penalties available, including the abolition of bread-and-water diet. Its chairman was Mr T. G. Weiler, Controller (Administration) of the Prison Department.

Report of the Working Party on Adjudication Procedures in Prisons (Stationery Office, £1).

## WEST EUROPE

## Swedish MPs call for law reform after disclosures that the rich legally avoid huge tax demands

From Roger Choate

Stockholm, Aug 27

Authoritative diplomatic and political sources said today that Sweden's Social Democratic Government appears to have failed into politically troubled waters after disclosures that some leading citizens pay very low income taxes by exploiting legal loopholes.

More than a hundred Members of Parliament representing all five parties today demanded immediate tax reform after reports by national newspapers. The reports have been confirmed by tax authorities and high Government sources as carefully researched and accurate.

Tax authorities confirmed that many people, such as Mr John Mattsson, the country's highest gross income earner, and Mr Gunnar Ström, the Finance Minister, had used the country's extremely generous tax deduction laws to whittle down their taxable incomes.

Newspapers said that some Swedes in this fabled land of equality, were living like Arab potentates, deducting mansions, works of art, Rolls-Royces and other things as business expenses.

Mr Tord Magnusson, brother-in-law of the King, paid no state income taxes in 1974, in spite of a personal fortune, tax officials confirmed. Mr Magnusson told the Stockholm newspaper Dagens Nyheter that he had no income in 1974 but lived on his savings.

Diplomatic and political sources were careful to note that no one had done anything illegal, and that all tax returns in socialist Sweden are open to public inspection.

None the less, they said, ordinary Swedes groan under Western Europe's most sternly progressive income tax rates which seldom permit average wage earners to make generous pre-tax deductions.

It has come as a shock for them to learn that Mr Ström,

an architect of the system and a pillar of the long ruling Social Democratic Party, last year paid about £3,900 in taxes on a gross income of about £27,000. This was disclosed by tax officials and Mr Ström himself.

The sources agreed that Mr Ström and the Social Democrats appear to be embarrassed because the socialists, who have ruled Sweden for 44 years, fervently champion a basically classless society "through solidarity", and are publicly committed to narrowing income gaps.

The Social Democratic newspaper Aftonbladet of Stockholm, which chided Mr Ström, said the Finance Minister, who is 67, acquired an apartment building in 1970 in Stockholm's exclusive Old Town district.

It needed renovation and he was able to deduct from his gross income all renovation costs, as well as interest on building loans and other expenses. He lives in the building, where he lets flats whose rents have been increased.

On his 1974 gross income of 250,610 kronor (about £27,000) he thus deducted 181,936 kronor before arriving at a taxable sum. Mr Ström also paid low taxes in 1973 and 1972 by using the same exemption devices.

Mr Mattsson, a construction magnate, had a 1974 gross income of nearly 9m kronor (about £1m), tax officials said. He deducted more than 6m kronor before he was liable for taxation. Mr Henning Sjögren, one of the country's wealthiest and most socially prominent lawyers, declared a 1974 taxable income of 25,500 kronor, tax officials said.

During the disclosures the mass circulation newspapers Aftonbladet and Expressen invited readers to telephone and give their reactions. Thousands of angry Swedes are said to have done so.

The average man on a wage earns about 30,000 kronor (about £3,250) a year. If married with two children he pays about 35 per cent in local and national taxes in a country with Europe's highest prices.

Stiff taxes are even levied on foodstuffs, which has resulted in a brisk trade in dog and cat food among pensioners, according to the Social Welfare Ministry.

Mr Olof Palme, the Prime Minister, today broke his silence after eight days of huge headlines and defended the Finance Minister, who has been in Swedish Cabinets since 1945.

Mr Ström, he said, was an upright, honourable and honest man, a statement which no one in Sweden would dispute. Mr Palme declined to comment on whether it was politically wise for a socialist Finance Minister to avail himself so freely of the deduction system.

But, Mr Palme added, the system had been abused by the very rich and should be reviewed.

Mr Gunnar Helen, the Liberal Party leader, said he believed the best solution was to use high income earners' apparent high devised ways of deducting almost their entire incomes.

Mr Ström did not dispute the accuracy of newspaper reports but defended his deductions. He said in a written statement that the apartment building he owned was in such bad shape when he bought it, that he was forced to spend large sums to renovate it so that his tenants could live comfortably. Renovation costs, as well as interest on loans, were tax deductible, he noted. "The Finance Minister is also permitted to make pre-tax deductions," he added.

He denied that the building had greatly increased in value as a result of renovation. "The reverse is true," he said.

## Developing nations' need for teachers

From Tim Devlin

Education Correspondent

Geneva, Aug 27

The developing nations will still be unable to provide education for all their children of primary school age in 1985, Unesco's thirty-fifth international conference on education was told in Geneva today.

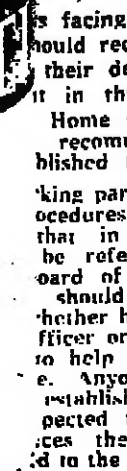
Projections prepared by member states showed that, if present trends of 67 per cent

of the six to 11 age group in schools; Africa 44 per cent; and Latin America 75 per cent in 10 years' time.

Attending the conference, 400 delegates from 80 countries, Mr Amadou Mahtar Mbow, director-general of Unesco, referred to the impossible task confronting countries that in some cases, would have to triple the number of teachers to provide education even for this age group.

In 1985 only about a third of the next age group in Asia and Africa would be attending secondary schools and just over half in Latin America.

Dr Amadou Ali, federal Commissioner of Education for Nigeria, said that 25 per cent of his country's six-year-olds were at school at the moment but the republic was witnessing "growth which had been met with a corresponding call for educational provision."



Reproduction of Dunlop competition advertisement.

## We wish someone had come up with a quick way of examining competition entries.

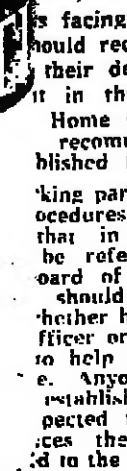
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## ENTERTAINMENTS

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## A AND BALLET

**NATIONAL OPERA**  
Royal Opera House, Covent Garden, London  
Tonight: *La Traviata*  
Tomorrow: *Il Trovatore*  
Wednesday: *La Bohème*  
Thursday: *La Traviata*  
Friday: *Il Trovatore*  
Saturday: *La Bohème*  
Sunday: *La Traviata*

## CONCERTS

**Royal Albert Hall** (8.00)  
London Symphony Orchestra  
Conductor: Sir Colin Davis  
Program: Beethoven: *Symphony No. 9*  
Mahler: *Symphony No. 2*

## LONDON AT THE MATINEES

**English Opera Group**  
English Opera Group, English Opera House, London  
Tonight: *La Traviata*  
Tomorrow: *Il Trovatore*  
Wednesday: *La Bohème*  
Thursday: *La Traviata*  
Friday: *Il Trovatore*  
Saturday: *La Bohème*  
Sunday: *La Traviata*

## THEATRES

**THEATRE** 8.50 7.11  
Tonight: *La Traviata*  
Tomorrow: *Il Trovatore*  
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## THE ARTS



In old Chicago

Photograph by Donald Cooper

## Comic-strip love for a hoodlum

**Happy End**  
Lytic

**Charles Lewis**

As William Mazon pointed out on this page on Tuesday, Bertolt Brecht was not depressed at the failure of *Happy End*, commissioned to repeat his earlier success with Kurt Weill's *The Threepenny Opera*. In fact, Brecht seems to have disclaimed it before it opened, crediting the book to "Dorothy Lane" and in Gordon McDougall's vivid, well-paced production, it comes across as the product of a mind and an imagination as wide as the world. The split in Brecht between the sentimental and the detached observer is most notable and most rewarding in *Mother*

*Courage*, whose appalling, self-interested heroine never fails to gain an audience's sympathy. Here it expresses itself in a comic-strip account of a Salvation Army lass's love for a hoodlum, to which is tacked a social message. "Robbing a bank is no crime compared to owning one," which hangs on to the B-movie structure rather like decorative tiles on a block of council flats.

The affairs of the gang and the salvationists are interwoven with dramatic skill: the sermon, in which the heroine relates an invisible God to wireless signals, is beautifully parodied in the gangsters receiving instructions from the wire of their leader via a crystal set. However, the true strength of the show derives from Brecht's poems and Weill's thrilling

music. Though gleaming microphones from Saul Radomsky's flexible, atmospheric set like quills upon the fretful porpoise some of the words of the songs could be a bit clearer. Nevertheless, Calif Bennett's stunningly presents "The Mandala Song" and Angela Richards authoritatively colours "The Sailor's Tango", giving an especial power to the apprehension of death; and if one wishes for a Lenya to tackle "Surabaya Johnny" it is because the song seems to be an expression of a woman more hardbitten than Miss Richards or the girl she plays. In fact, like most of the songs, it is a character number working as a gloss on the situation, rather than an expression of character in action. Like the

## The Reluctant Debutante

Phyllis Calvert and Richard Vernon head the cast of a new revival of William Douglas

Brecht's comedy *The Reluctant Debutante* which opens at the Ascroft Theatre, Croydon on Tuesday. The production is by Bury St Edmunds, Brighton, Richmond, Epsom, Bournemouth, Torquay, Birmingham and Bath.

## Bunyan's pilgrims find themselves in a tribal musical

**Pilgrim**  
Assembly Hall, Edinburgh

Bunyan, of all authors, ought to feel at home at this address, but the figure of Knox in the courtyard would hardly recognize the bedizened effigy of his fellow Calvinist which the Prospect Theatre Company has smuggled into the Assembly Hall. Heaven knows what the Edinburgh devout will make of this show; but for once I shall be on their side if they view it as *The Pilgrim's Progress* as staged for the crowd at Vandy Fair.

Jane McCulloch (book and lyrics) and her director, Toby Robertson, have evidently set out to bring us another Godspell: a fun show that drains all the harsh doctrine out of Christianity and leaves behind the husk of a story that is as violent in manner as it is bland in content.

Agreed, the story as Bunyan told it contains much that is hateful to modern ears and groans with emblematic moralizing. However, the book remains alive because of its content: as a myth on the psychology of conversion, which applies to other faiths than seventeenth-century English Christianity. Christ's quest, for instance, could be rewritten as a Marxist pilgrimage with Worldly-Wise

Man. Talkative and the other tempters figuring as smooth-tongued capitalists and fellow-travellers.

On that basis you can imagine the stage picture: a good-looking young chorus surrounding a blond guileless hero (Paul Jones), who substitutes a sweet smile and like pelvis for the ruthless resolve of Bunyan's hero; and who embarks on the whole ordeal in the spirit of an Outward Bound candidate.

Within its imitative and vulgar limitations the show is ably and sometimes inventively staged. The best idea is the transformation of Bunyan's

Evangelist into the main clown part. Arriving with a somewhat John Bove goes through the adventures as the biggest trickster along the route, always dropping on the unprepared Christian in the guise of an armed warrior or an old rustic piping away on a penny whistle. By this means several episodes are telescoped and the character relieved of his self-righteousness.

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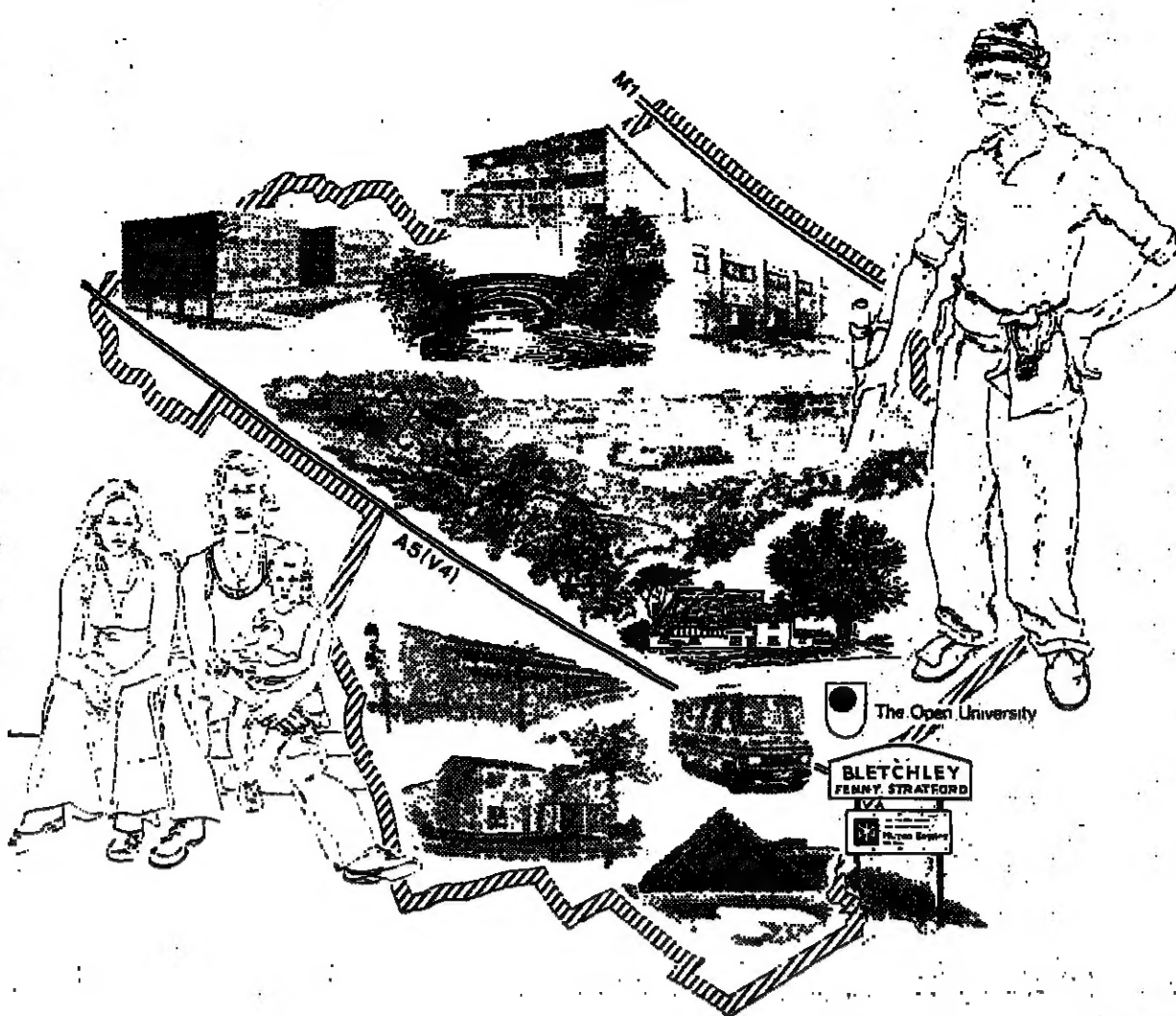
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# Milton Keynes



London Daily

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Milton Keynes, when completed, will be easily the largest new town in Britain. It may also be the last. Although some enthusiasts may like to see it as the first in a second generation of new "cities", built on an altogether grander and more exciting scale than Stevenage or Hemel Hempstead, it is more likely to be the climax of an era.

Conventional wisdom has it that the new towns are one of this country's few important successes since the Second World War. Economically that is certainly true of the older towns, mostly clustered around London, socially and aesthetically their success is more questionable.

But the long debate about whether to go ahead with a new town in central Lancashire, originally conceived on much the same scale as Milton Keynes, and the recent decision to reduce the growth targets for Telford are signs that government planners are revising their ideas.

Experience with new towns in Scotland, the north-east and Lancashire has not been

to areas where jobs are needed, however juicy the carrot. Critics say that they attract investment away from older industrial cities and hasten their decline.

It is argued that the population "explosion" is over, that we cannot afford the continuing loss of agricultural land, that priority should be given to rehabilitating and renovating the many decaying industrial areas and making them attractive places to live and work in, and that it makes better economic sense to expand towns like Northampton and Peterborough than to start from scratch on a green field site.

However, Milton Keynes is, and always will be, something special. For one thing

late a depressed region, clear evidence of dereliction or arrest depopulation, it is rather as if the planners had studied a map of Britain and pinpointed the site best guaranteed to ensure success.

It lies about half way between London and Birmingham, close to the M1 and bisected by the A5. It is on the main railway between London and the North-west, and is to have a new station, the first to be designed specifically for the Advanced Passenger Train. All it lacks is the third London airport, which might have been built at Wing nearby.

There is no question of the Government having to direct or persuade firms to move to Milton Keynes. Being within the South-east region, although near its spoken-recognition that the

everywhere else in the region and, paradoxically perhaps, has to fight for its industrial development. The design of the city, its spaciousness, the low density of housing, the emphasis on trees, parks and open spaces, the implicit—though unspoken—recognition that the

its almost guaranteed prosperity has inevitably aroused envy. Given all its physical advantages, its setting in the midst of lovely unspoiled countryside, its bonus of the Open University, and a firm base of advanced technological and research industries attracting highly educated and well-paid workers, it is vulnerable to charges of elitism.

The design of the city, its spaciousness, the low density of housing, the emphasis on trees, parks and open spaces, the implicit—though unspoken—recognition that the

contribute to the impression that it will be somehow superior to other new towns. In a recent issue of the Architectural Association Quarterly, analogies are drawn with the wealthy garden suburbs of the United States.

"The epithet 'new city' implies the 'Americanness' or potential 'Americanness' of the original planning ideas", Mr Dennis Sharp, the magazine's editor, writes. "Milton Keynes, I suppose, is the nearest thing we shall get to Utopia. It will be an 'instant' city, urbanized almost overnight by the amalgamation of the many small and delightful villages, transfused by such organizations as the equally instantaneous Open University, and already compounded by a growing community of some 15,000 people."

Presumably he meant newcomers as the time of writing, since the original population numbered some 40,000 and has already grown to about 65,000.

In the same issue, Mr Robert Maxwell, senior in architecture at the University College, London, suggests that Milton Keynes is French rather than English in inspiration. "The road becomes a boulevard, is long and straight and is regularly lined with trees and with parked cars," he writes.

"The result, as with the magazine *Maison*, is to project an aura of bourgeois calm. Critics who had already denounced the new town as being over-committed to the private car and private choice will no doubt take the designs for the centre as further proof that the city will effectively become a middle class ghetto."

But, as Mr Maxwell goes on to point out, that kind of response is facile. The appeal of new towns lies in the escape they provide from the squalor and the chance to live and work in clean open surroundings. It is the worst sort of arrogance to imply that such conditions are wrong for the "workers", that a pleasant and even excellent environment is somehow corrupting. Fred Lloyd Roche, the development corporation's youthful and articulate general manager, is in any case well aware of the danger of being thought elitist, even if the accusation is unjustified. "We must cater for a full social range, and that includes things like housing for single-parent families," he says. "As for the physical en-

creating a sort of planned suburbia. But suburbia is not necessarily a dirty word. There are many things about it which people find delightful."

Certainly there is much to admire in the models displayed at the corporation's offices. The city centre, now in the first stages of construction, with its grid-iron pattern of broad tree-lined boulevards and its spacious, unoppressive shops and offices, is unlike anything else in Britain. The overall plan is also remarkable for its lack of rigidity.

It is far too soon to judge whether Milton Keynes will fulfil its high promise. Some of the more ambitious schemes may fall victim to economic pressures. The proportion of public to private housing is about 75 per cent to 25 per cent, which is higher than Mr Roche and his colleagues would like. Much of it has been built in a hurry, and looks it.

The intention was that every house should be built on the assumption that it might one day be offered for

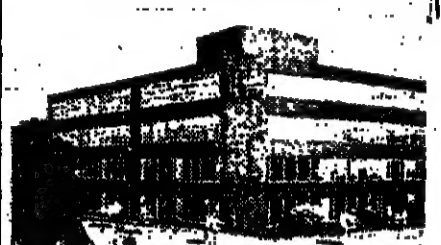
sale, but present policy forbids so much. Pressing on to reduce the town's population to 100,000, the town's proper hospital, schools, and other facilities are bound to be built.

However, the little reason to Milton Keynes is that it would have to get fools than could not make commercial use of it," Mr Roche says.

Many people are swallowing thousands across countryside, an idea of pretty like Stony St. modern community. But at least deliberate mistakes should be a idea," Mr Roche says. "By the way, you will over the planning but trees."

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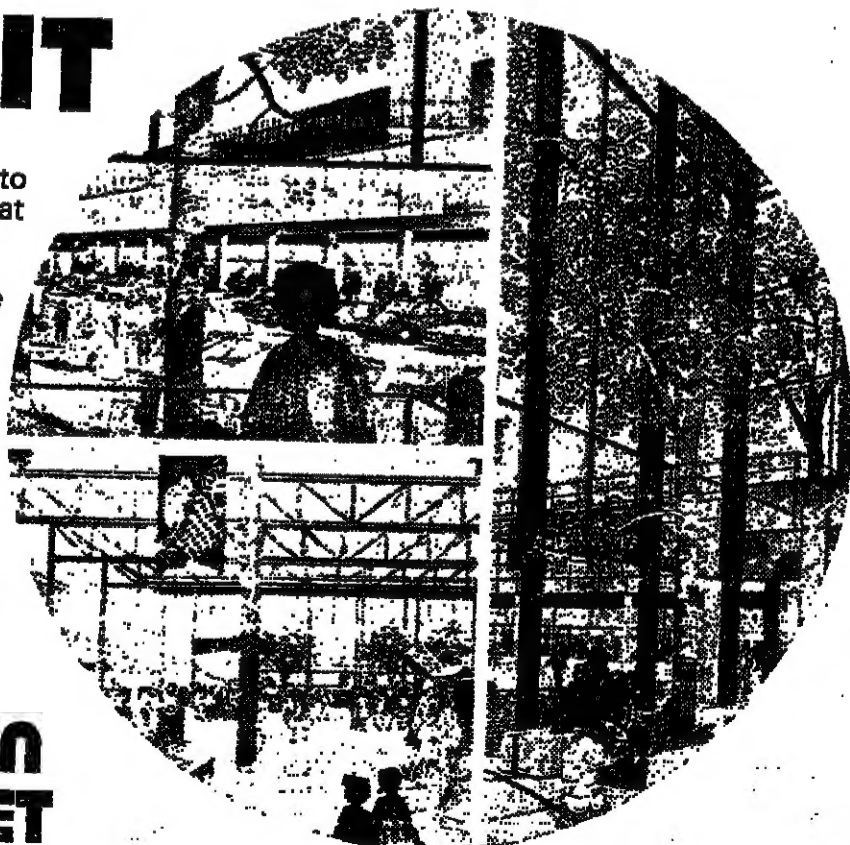
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## University grows more open

by Robin Mead

Six years ago, the dream of Timothy Boutwood, Lutter the OU and they would not know that we were true. While driving around

the quiet lanes of Buckinghamshire he spotted two old cottages standing alone in a large rambling garden. They made up the lodge to a large country house called Walton Hall. Suddenly Mr Boutwood saw his chance to escape from the factory routine and buy himself the home that had been his ambition since childhood.

Timothy Boutwood threw up his factory job and moved to the tiny village of Walton with his father and mother. The two cottages became one, and three pairs of hands turned the garden into something straight out of a picture book.

"This place was a heaven when we came here," Mrs Frances Boutwood says. "It was like living in a wilderness." When they heard on the radio that something called the Open University was being created, and that Walton Hall was to be its headquarters, the family took little notice.

But today the OU is almost the Boutwoods' nearest neighbour, and the peaceful double cottage is on the fringe of a 70-acre university campus where 1,500 people, including Mr Boutwood senior, are employed.

"Everything is going on around here now," Mrs Boutwood says. "You used to be able to go for miles on lovely walks, but now the birds are disappearing, the road has been widened, and we might just as well be living on the M1."

The reaction of the Boutwood family towards the new town of Milton Keynes in general, and the Open University in particular, is typical of the attitude of local residents who have seen their rural seclusion vanish in a glare of modern street lighting and the rattle of concrete mixers.

"They care little that the OU is making educational history by teaching 48,000 students in their own homes, or for the money, job opportunities and recreational and cultural facilities which the OU provides."

OU people feel similarly ill at ease. "They don't like us much in Milton Keynes," says Mr Clive Fawcett, editor of the Open University's staff magazine *Open House*. "They think we don't do anything."

And visits officer Miss Rosie Seymour, who looks after the stream of foreign educationists wanting to know more about the OU, is even more cutting. "They don't really think much about us locally," she says. "You could quite easily stop in Bletchley (three miles

away) and ask the way to the OU and they would not know that we were true. While driving around

the quiet lanes of Buckinghamshire he spotted two old cottages standing alone in a large rambling garden. They made up the lodge to a large country house called Walton Hall. Suddenly Mr Boutwood saw his chance to escape from the factory routine and buy himself the home that had been his ambition since childhood.

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## Employers put emphasis on leisure

gave us the chance of a fresh start—that the remark which one of the again and again when we are asked why we move to Milton Keynes.

One company that made a move is Rank Radio National, a part of the Organization, whose £2.4m warehouse complex at Milton Keynes became operational last July. The new complex is a new computer-controlled distribution centre, and contains 80,000 sq ft of storage space for a wide range of goods.

The site was chosen three years ago because it has space for expansion, the company believes it will meet its requirements for several decades. The new town is also a good road and has good road links with other parts of the country.

Milton Keynes is like an attack of mumps," Mr Chris Bryant, a spokesman for Rank Radio National. "Bletchley is the centre of development. If you look at it from there are patches all over which will eventually be already a work area of 120, and it is growing. There is a social club. The company arrives at the centre of development and the company is the British Oxygen firm. It moved in August 1972 as part of a group expansion policy, and now we are attracted by the position of Milton Keynes and its excellent facilities. A work of 150 now make and are working equipment.

which arrived in town 13 months later, attracted by the housing and the facilities required for the production of pharmaceutical products. They also had an eye on the Open University near and possible research and graduate employees being attracted to jobs now completed.

## O brave new town

by Philippa Toomey

want to go to the Milton Keynes by health service is prepared to shoulder this burden. The people come mostly from London; they are people who have decided to make the break and find a new home. Milton Keynes £10 a week many times over. The new town is a new town. People who have been existing in expensive furnished rooms or in old sub-standard housing must feel themselves in heaven.

There is one large leisure centre in Bletchley, which I found splendid and lots of fun. The swimming pool has a couple of palm trees growing out of it, though for serious swimming you would have to go elsewhere. There are indoor bowls, small bore shooting, archery, squash, 10-pin bowling, a youth centre, restaurants, a bar from which you may watch the more energetic tearing themselves to shreds at badminton, a small workshop, a recently opened, committee rooms for hire and so on.

In the north there is another leisure centre planned at Stantonbury, where the facilities provided at a large school will be used by the community as well. Already there is a theatre.

Then there is 14 miles of linear park, which will take you walking beside the river Ouzel and the canal, not to mention the lake, one eventually will be for sailing and fishing, with a boat-house, golf courses, and a huge park stretching down from the city centre.

This is a vision only at the moment, because when you get up to it there is only a trench in the ground a kilometre long. There are some splendid plans for the city centre, and by the way, in the end we are able to judge the whole vision.

If there are slight qualms, it is over the quality of the vision. Of the dedication and enthusiasm of the corporation there can be few doubts.

The "them" and "us" attitude is kept—if indeed it exists—to a maximum, though it is possible that there is a slight social difference between those who rent and those who own. The churches, too, have their problems. There is an ecumenical team of the clergy who live and work in the area taking over a house or flat as a centre. Only the Roman Catholics have plans to build a new church, but services have been, and are being held in almost every community meeting place available. One might wish for a cathedral—something splendid for the glory of God—but on the whole that is not the Milton Keynes way.

What will it be like when the children and the trees are grown? In the end, it will depend not on the corporation, but on the people who have chosen to live there. It seems that Milton Keynes, with its millions of trees, its gardens, parks and lakes, has every opportunity of becoming "the mean city."

## Mary Beale: England's 'first professional woman painter'

by Patrick O'Leary

St Michael's, Walton, a medieval church, is drawing fresh life from being on the Open University campus. Among its treasures is a marble wall monument to Bartholomew and Katharine Beale.

For three centuries the busts of the couple have looked down, he with luxurious moustache and pointed beard, she long-haired and radiating calm. The inscription says they were "the religious parents of seven sons and two daughters", and Charles and another son paid for the monument.

## Bewildering variety

Little more would be known of the Beales if Charles had not married Mary Cradock, who became a prolific portrait artist. She will be the subject of what the organizers call "the first exhibition of England's first professional woman painter" at the Geoffrey Museum, East London, from October 14 to December 21.

Mary Beale painted a bewildering number of Restoration worthies, including dukes and bishops, galleries, colleges, and stately homes are sending works to the exhibition.

Since her customary fee was £5 for a head and shoulders, and £10 for a three-quarter length, the quality was not always high. But her work was praised by Sir Peter Lely, and she copied his style with skill.

The Beales became an artistic factory, with husband Charles priming canvases, and the couple's sons Bartholomew and Charles adding heads and shoulders. Young Charles was talented, and his work will be seen in the exhibition, including a miniature lent by the Queen.

His father noted in 1677: "This year Mrs Beale had great business amongst people of quality as well as others and the account cast up at the end of the year—she sometimes dashed off likenesses of tradesmen instead of paying bills."

However, her self-portrait, normally stored in the National Portrait Gallery but lent for the Geoffrey exhibition, shows a calm matronly figure, with an unflattering double chin. She holds miniature portraits of her sons. The gallery's permanent exhibition includes her portrait of George Savile, Marquess of Halifax, known as "Trimmer" Halifax for his political adroitness.

Another self-portrait, now abroad, shows the artist in almost coquettish mood, holding a palette and a clutch of brushes. What is

believed to be yet a third self-portrait, of a younger, sleeker Mary Beale, is in the collection of Mr Edward Beale, at West Lodge Park, an hotel near Hadley Wood, Hertfordshire.

The family tree is complicated because the Bartholomew and Katharine of the Walton monument were both ancient but almost extinct families. Mr Edward Beale traces his descent from the father of Katharine.

He has collected Mary's work for many years, his most important acquisition being her portrait of Margaret Blagge, a close friend of John Evelyn, the diarist. One expert believes it is too good to be a Mary Beale, but the painting was attributed to her at the Royal Academy exhibition "The Age of Charles II".

Another famous subject was James, Duke of Monmouth, whose portrait is at Woburn Abbey, not far from Walton. The Beales' connection with Walton began in the 1620s. Bartholomew bought property there, and his cousin, Theodore Beale, was rector of St Michael's.

Charles and his bride lived there after marrying in 1652, and according to the Dictionary of National Biography he became lord of the manor—his father died in 1660. However, Charles and Mary

soon went to London, and the property passed out of the Beale family about 1690.

According to Horace Walpole, Sir Peter Lely was said to have had a tender attachment to Mary, "but as he was reserved in communicating to her all the resources of his pencil, it probably was a gallant passion, rather than a successful one."

Lely's death in 1680 led to a demand for copies of his portraits, which the Beales did their best to meet. Even experts differ on which paintings are original Lelys, and which are Mary Beale copies.

## Artist in her own right

The coming exhibition should at least show Mary Beale as an artist in her own right, rather than somebody blamed for all the inferior Lely portraits. Her original works are sometimes distinguished by an oval border in imitation of carved stone.

Thomas Tenison, Archbishop of Canterbury, can be seen in such a frame in the illustrated guide to St James's Church, Piccadilly. He was rector there, and Mary Beale was buried in the church towards the close of the seventeenth century.



Mary Beale's portrait of Margaret Blagge. The picture belonged to Evelyn, the diarist, and is now in the collection of Mr Edward Beale.

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## Milton Keynes

For further information write to Alan G. Ashton F.R.I.C.S., Commercial Director, Milton Keynes Development Corporation, Wavendon Tower, Wavendon, Milton Keynes MK17 8LX, or telephone Peter Clapshaw A.R.I.C.S. Milton Keynes (0908) 74000 ext. 254.



# Soviet agriculture struggles to escape from the grip of the desk-bound 'farmers'

Why is the Soviet Union unable to grow enough grain? The question obviously bothers Mr. Brezhnev, for his press never tells his people that he periodically pays huge sums in hard currency for grain from the crisis-ridden lands of capitalism. It also bothers President Ford, who has to cope with the political and economic effects of unpredictable surges in Soviet buying. Developing countries are no less concerned for the poor Soviet harvest of 1972 contributed to the trebling of cereal prices on the London market. A large number of people therefore want to know what prospects there are of the Soviet Union covering her needs or even resuming her lost role as a regular net exporter.

The short answer is that Soviet agriculture is improving but slowly and at great cost. Comparisons with the United States are unfair but revealing. The Soviet Union has roughly half as many tractors as the United States and a fraction of the number of ancillary workers in maintenance, supply, and other services. The Soviet Union uses about half the average American amount of mineral fertilizers per acre and pays more in price support than any other country in the world in absolute terms and in relation to national income. About a third of the Soviet working population produces somewhat less than enough for 247,700,000 people while about 4 per cent of working Americans produce much more than enough for 203,200,000 people.

The comparisons are unfair because the Soviet Union has a smaller proportion of good land than the United States, a generally worse climate, a different history, and a different population structure. Among other things, a high proportion of the rural workers are elderly unskilled women

who would not adapt easily to modern methods under any system. Nevertheless, political systems past and present must take their share of the blame. Stalin systematically exploited and disrupted agriculture as he pushed the country into rapid industrialization. Then came Mr. Khrushchev with grandiose schemes which caused another sort of havoc.

Mr. Brezhnev has been working hard to make up for lost time. Big new programmes of mechanization, land improvement and price reform were introduced in 1965 and 1970. Investment grew 69 per cent in 1966-70 and is planned to have grown by another 57 per cent by the end of this year, which is faster than in any other sector of the economy.

Agriculture and related sectors now receive 31-35 per cent of total investment. As a result plans are being fulfilled more reliably than in the past and an annual average growth rate of about 4 per cent is assumed. When imports are needed they are not to save the population from starvation but primarily to maintain livestock and thereby meet rising demand for more and better meat.

But Mr. Brezhnev is certainly not satisfied. The costs of agriculture are very high. Gross inputs have doubled since 1965 while gross output has increased by about 45 per cent, and the rate of return has been declining. This is partly accounted for by higher prices for machinery, and by investment in long-term projects, such as

fertilizer plant, land improvement and infrastructure, but against that there has been no direct investment in the private sector, which continues to provide about a quarter of total output. (Obstinate peasants who were moved into blocks of flats with no private plots grew onions on the roof. Others just refuse to move.)

Obviously money alone is not the answer. The problem is to absorb it usefully. Not until the current five-year plan did input targets begin to be met in full, and even now investment is often wasted. The Soviet press is full of stories about bureaucrats allocating machines where they are not needed, ignoring requests where they are needed, and harassing everyone with streams of useless instructions. Even worse is the shortage of

trained mechanics. It might seem a simple matter to direct more young men into training schemes and thence to the farms, but coercion of that sort is no longer part of the system. Young men drift away to better paid jobs in the towns, leaving grumpy to tend their private pigs amid the rusting machines. About 600,000 mechanizers completed their training in 1971-73 but by the end of that period the number employed on farms had risen by only 3,000. This may help to explain why, although 2,762,200 tractors were delivered in 1966-74, the number in use rose by only 675,000.

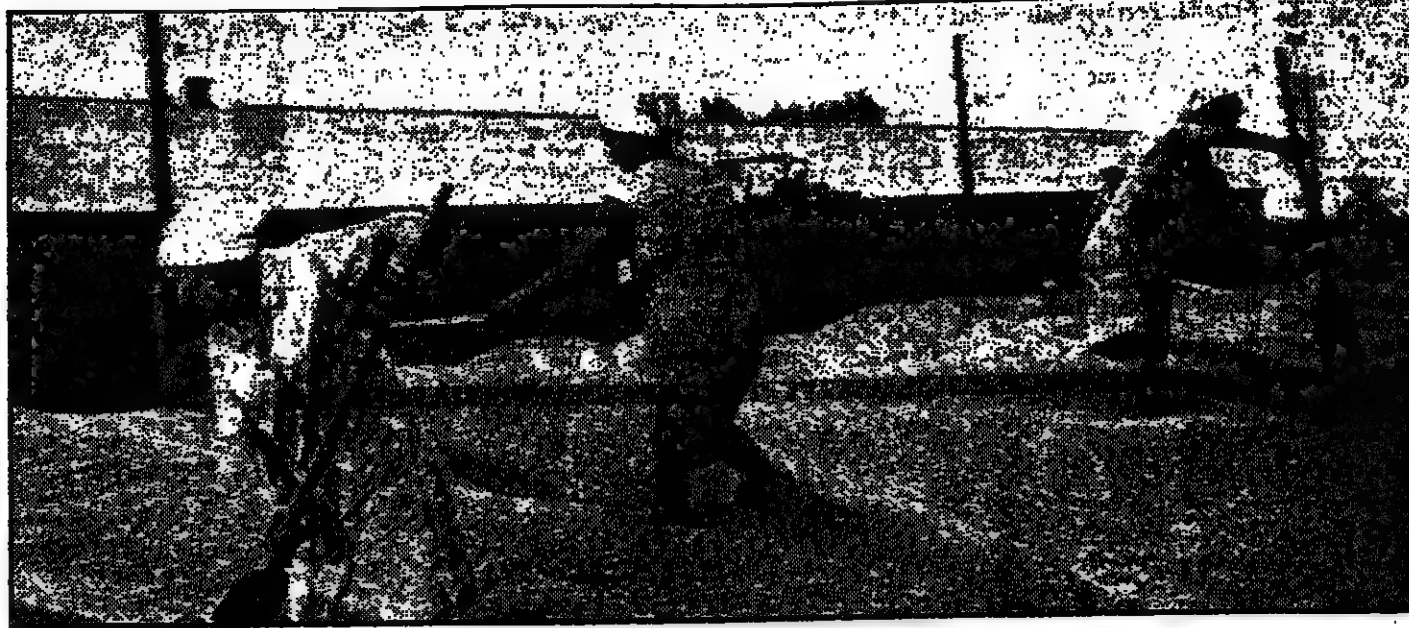
The average wage for collective and state farm workers is still well below that of industrial workers. The gap is being narrowed in the current five-year plan, which gives a

30 per cent wage increase to farm workers and 22 per cent to others, but conditions of life on the land, in spite of improvements, still tend to drive away the best and brightest young men.

Behind this lie other problems. Price reforms have made farming nominally more profitable than it was, and raised incentives. There is even a 50 per cent price premium for sales above the plan. But bureaucratic directives still determine production more than prices, which reduces the incentive to farm efficiently. At the same time the political need to keep down consumer prices means that state subsidies are now enormous. According to estimates, total subsidies on procurement in 1975 could amount to something like £13,300m, which is more than the overt defence budget, though less than the real one. On top of this come huge bills for land improvement, machinery, roads, railways and housing, which make up more than as much again.

Seen through western eyes, therefore, Soviet agriculture is becoming more effective but scarcely more cost-effective. In fact, western experts predict that the Soviet Union's agricultural investment will continue to sink. Provided the government is ready to go on pouring in money it can probably achieve the self-sufficiency it seeks, and even resume modest exports of food grain. But a small feed will have to be imported for some time if meat supplies are to keep up with demand, and there are very serious problems to be met in keeping trained men on the land, and reducing the huge burden which agriculture imposes on the economy as a whole.

Richard Davy



Drying wheat on a collective farm near the Black Sea: many rural workers are unskilled elderly women.

## Counting the cost of Scotland's new spendthrift councils

The new local government areas in Scotland, launched only three months ago after many years of agonizing, have had an unfortunate start to life. Long before they were able to demonstrate their better service to the public or prove that they really *pay for what they get*, they have already driven industrial and domestic rates sharply upwards in the new executives of the regions and districts were being appointed at substantially higher salaries than their predecessors. The explanation, reasonably, was that larger areas and greater responsibilities deserved more pay. Higher salaries were also necessary, ratepayers were told, to attract talent from outside the dusty corridors of local government but in many areas the new local government management proved to be the same faces sitting behind more imposing desks.

When, three months after they had got to work, local government officers were awarded a 22 per cent rise, giving some senior officials up to £5,000 a year more—simultaneously with Mr. Wilson's appeal for a general tightening of belts—scarcely a surprising result. A sprinkling of perquisites, including 53 per cent home loans, all democratically agreed and voted through the new councils, added further to the anger and even caused a Government minister to demand the dismissal of the senior executives in the central region.

Altogether, the impression has been that at a time when the new local authorities should have been winning friends and opposing enemies, they have impeded them to do quite the opposite. The new rate demands are now delivered and the cost of the first major reform of

local government in Scotland for 40 years is, in the public mind at least, coming home to roost. The result has been the sudden birth of a number of ratepayers' organizations, threatening a substantial number will withhold their money, and indignation in some rural districts is soon to be grafted a further layer of administration in the form of the Scottish Assembly, the cost of which to the taxpayer is causing some former enthusiasts to pause in their revolutionary tracks.

Precisely how local government could establish better relationships with the public by being more openly accountable to them is the subject of a study by Professor Alan Thompson, former Labour MP and now Professor of the Economics of Government at Heriot Watt University, Edinburgh. He believes the present situation in Scotland deserves to be examined by a Parliamentary Select Committee and he has also called on the Lord Advocate to speed up the legislation which will eventually give Scotland a local government ombudsman. Ideally the public should have direct access to him and should not have first to seek the approval of a councillor. He should have the right to question any local government official and call for documents. He would then be more obviously effective and would not give the impression of an ombudsman.

Professor Thompson also believes the powers of the Comptroller and Auditor-General could be strengthened in the sphere of local government spending, while the remit of local government auditors might similarly be extended. Perhaps the crux of the prob-

lem in the present local government organization, he said, was that the auditors concentrated on whether or not a decision was legal rather than making any observation about the cost-effectiveness or efficiency of a project.

"At a time when the high level of rates and taxes is being levied, the stability of costs of local government administration, I would prefer to see much greater scrutiny of local government spending by outside auditors with power to interrogate officials on how they are spending public money," he said.

He advocated a system more like that in France, where auditor inspectors had the power to impose penalties on prodigal councils. "Rightly or wrongly the public suspect that the change in local government has been an excuse for unjustified increases and perquisites for a wide range of officials and for proliferation and duplication of well paid posts, not always justified on economic grounds. For example, one authority in Scotland recently decided to pay its deputy director of administration a salary higher than that of the public relations secretary. Does the public really consider this man's responsibilities are greater than those of Mr. Callaghan?"

A difficult transition to survive with a massive volume of new legislation to handle and it was essential that the new councillors and their chief officials established good working relationships. It was therefore better that the efficiency and the effectiveness of local government should also be judged by an impartial third party.

Ronald Faux

## Britain's political romance with Romania

With noticeable promptness the announcement of the dates for Mr. Wilson's visit to Romania, September 16 to 18, has now followed the announcement that Mrs. Thatcher, the Leader of the Opposition, will herself start a four-day visit to Romania on August 31. Before September 16, the Speaker of the House of Commons is also due to visit Bucharest.

Two visits. Knowing the tenuous link in Britain for a real development of East-West détente through increased contacts, the party leaders are naturally glad themselves to pursue promptly a popular policy of contact—particularly with Romania, since no East European people years more than the Romanians for genuine détente and cooperation. The Speaker's visit is made, however, as representative of the whole Parliament.

September, in fact, will be something of a landmark in Anglo-Romanian affairs, and this accumulation of British visits may fairly be regarded as primarily a natural and vigorous follow-up of the Helsinki conference.

Mr. Wilson's visit is the first by a British Prime Minister to any East European communist country, apart from Russia, since the war. In demonstrating British friendship it will certainly please President Ceausescu. The strong bond which still unites him and his rigorously authoritarian regime with the people of Romania has been his spontaneous and passionate denunciation of the Soviet invasion of Czechoslovakia in 1968 and his courageous determination to maintain, as far as possible, Romania's independence. His geographical position makes it impossible for her to hope for the Titoesque vision of a

wholly non-aligned road for Romania, but he has maintained the semblance, and in a limited measure the substance of independence, by a policy of "silk cords" of cooperation with all peoples, by constant visits to the Third World and the West.

President Ceausescu, who is 57, has always been a dedicated communist and spent three years in prison for his alleged industrialization of Romania as rapidly as possible with the primary purpose of making her independent of Russia economically, and meanwhile to give the Russians no excuse to accuse him of abandoning strictly orthodox communism.

This means an all-pervasive security organization, continued suppression of all political opposition, and the strict control of the press. It would be clearly impossible, therefore, for any British political visitor to approve the regime which he or she will find, but Mr. Wilson and Mrs. Thatcher will remember that Romania, at the crossroads between eastern and western empires throughout her long dangerous history, has never known anything but autocratic rule.

It will be interesting to see if any differences emerge in the attitudes of the Romanians to their guests. Mr. Ceausescu, being President of the Republic and having been re-elected last November as Secretary-General of the Romanian Communist Party for the next five years, is very near to holding absolute power as he could be. With him will be Mrs. Elena Ceausescu, who accompanies her husband on his visits abroad, and who is an acknowledged leading Party in her own right.

For the Romanians the value of Mrs. Thatcher's visit may be to demonstrate that there can

be sensible debate on matters of common interest even with those western party leaders with whom on political doctrine—on the merits of private enterprise, for instance—they cannot possibly share eyes to eyes. With Mr. Wilson the welcome in public will certainly be warm, but the talks in private could be tough. Communists and parliamentary socialists are not normally easy partners. If some loose ends in Anglo-Romanian trade and economic cooperation over Romania's industrialization programme were not already foreseen.

Meanwhile in the short term one should be disappointed if in the immediate aftermath these British visits seem to have produced little concrete result or even to have been counter-productive. The more the Romanian public takes the opportunity to show enthusiasm for western guests, the more likely is it that President Ceausescu will play down the results, if any, and seek ways to compensate Russia.

All the same, if the Russians realize, as they surely gradually will, that such visits do not undermine in any way their own security system in Eastern Europe, next month's exchanges in Bucharest will be a worthwhile contribution, albeit perhaps, but definite.

A. M. Rendel

## Angola: Why civil war seems inevitable

The coup in Portugal in April, 1974, surprised no one more than the leaders of Angola's three liberation movements. Essentially, they had lost the protracted guerrilla struggle of some 13 years, and only one, the National Union for the Total Independence of Angola (UNITA), so much as had its headquarters inside Angola. The head-quarters of the National Front for the Liberation of Angola (FNLA) was, and is still, based in friendly Zaire where its leader, Mr. Holden Roberto, is a successful businessman. It has a few camps scattered along the border with Angola from where its 15,000 or so guerrillas, Bakongo tribesmen sheltering in Zaire from Portuguese reprisals, made occasional forays into the colony.

The Popular Movement for the Liberation of Angola (MPLA) claims vast tracts of liberated territory but, in fact, controls only the far east of Angola where its commander-in-chief, Daniel Chipenda (since defected to the FNLA), waged a reasonably successful war. It also managed some political infiltration of the urban areas which it was able to capitalize on more fully after the ceasefire. For the rest, the MPLA's 3,000 or so guerrillas were stationed in either Congo or Zaire, from which they made occasional raids into Angola. What is more, at the time of the coup, the MPLA was so split by internal disputes that the OAU (Organisation of African Unity) was withdrawing its recognition and financial support—as it had to three years earlier, when it, too, had been threatened by inactivity and power wrangling.

The third movement, UNITA, under the charismatic personality of the FNLA's foreign minister, Mr. Jonas Savimbi, boasted a mere 600 guerrillas, but, in the south among the Ovimbundu tribe, their attacks and ability to melt into the night were causing the Portuguese some agitation, but nothing more.

Then came first Spínola, and after him the majors, all armed with promises of ceasefires and future independence. The situation for the movements immediately altered: they each experienced a massive build-up of morale, soldiers and equipment. Today the FNLA's armies each number about 20,000 according to Portuguese sources, while UNITA boasts approximately 22,000, of which slightly less than half are actually armed. More movements are now supported also by the Portuguese, the shrewd Portuguese control over the hearts and minds of the general public.

### Significant build-up of arms

The FNLA's main support, and military sphere of influence, is in the north-west of the country, among the Bakongo tribesmen who straddle the border with Zaire. The organization itself started life as a Bakongo royalist group but attempted to widen its appeal, largely unsuccessfully, after Roberto came into contact with other African nationalist leaders in Accra in 1958. Its initial international support came from America, Tunisia, Algeria and the Congo, who provided weapons and training. Today the FNLA is slight, however, and its strong and numerous leaning. While America and France might well be covertly helping the FNLA which, ideologically, is probably closest

to them, there is no overt aid in the form of weaponry, even for seven French *Paras* who have built up their army significantly in the last months.

The MPLA which, while maintaining the form of a popular front, is a Marxist-Leninist movement, has less of a tribal base than the FNLA or UNITA but it has largely failed to extend its sphere of influence to Bakongo or Ovimbundu tribesmen and gets most of its support from the Kivimbundu of Luanda and the surrounding areas. It is supported by a fair proportion of Angola's large, mixed (mixed blood) population, many of its leaders are in mestizo intellectual circles. MPLA's origins are rooted in the influence of underground Portuguese socialist Party over the intellectuals in the FNLA's MPLA's leader, Dr. Agostinho Neto, for instance, is a mestizo poet and philosopher trained in Lisbon. The FNLA is now extremely well equipped, and the FNLA, receiving constant arms over the last months 120mm recoilless guns, Czech armoured cars, the standard issue Kalashnikov machine guns, etc. The MPLA has armed a mately 7,000 civilians in Popular Power movements politically and militarily. MPLA is better organized more disciplined than the other two organs and has tended to take then keep the political military initiative thru the war of the last month!

### Appeal of moderate socialists

UNITA, is still by far the weakest of the liberation movements while, ironically, probably the most realistic. This appeal to Ovimbundu of the central plateau, who account for more than 40 per cent of the population, is UNITA's president, Mr. Savimbi, has been doing a good deal of work in bringing movements together in conferences on five occasions in the last months, and also for the FNLA's support. This is a far from ideal situation, but even he has now said that peace conferences of no more use and war on the MPLA. The FNLA, on the other hand, is a far less than a thousand armed men and men "guerrillas" are not rapid expansion is the leadership has been little in the way of an or talented infrastructure support it. This, in addition, there are scores over the last months.

Savimbi's appeal of socialism, which is situated somewhere that of Kenneth Kaunda supporter—and Nyerere, is undoubtedly due to many western and certainly the FNLA, largely unsuccessful, after Roberto came into contact with other African nationalist leaders in Accra in 1958. Its initial international support came from America, Tunisia, Algeria and the Congo, who provided weapons and training. Today the FNLA is slight, however, and its strong and numerous leaning. While America and France might well be covertly helping the FNLA which, ideologically, is probably closest

Jon



## The winning of the Admiral's Cup.

Noryema, Yeoman XX, Bartleary... read the full story, see the superb pictures of how Britain won the Admiral's Cup from a 19 nation entry. Take a long look back at Cowes Week. And read our preview of the Southampton Boat Show—complete with stand-by-stand guide and full details of new boats and products. It's all in

## Yachting World

40p Out now.

## The Times Diary

### Two hours on disaster course

Punjab are rather boring", his commentary explains, as they come up on the screen.

But of course, there are harrowing shots of starvation and of the poor in India gleaming for single grains of rice, farmers in Bangladesh trying to salvage their crops stalk by stalk after floods, women in Peru tugging water up mountainsides, and pious talk about helping people to help themselves.

At light relief there are some tellingly superficial interviews with rich Westerners explaining why our own problems are too pressing to leave time for anybody else's. "They talk like poor people", says Julius Nyerere after the interviews, "and if they talk like poor people they are poor people."

### Slimmer

Marlene Johnson's problem was food too, but she had simply been eating too much, and yesterday *Slimming* magazine presented her at the Savoy Hotel as their slimmer of the year. She had shed more than seven stone in 10 months and is now a svelte eight stone two pounds. She posed in a crocheted dress beside a wax dummy of her former self. It took two men and a trolley to move the dummy outside when the photographer wanted to take her into the sunshine.

Mrs. Johnson said that her parents had been told when she was a baby that she was too fat to walk, and that as she grew older and ever fatter she grew more in despair. "A historical series on television recently said that women a century ago measured 18 inches round each calf."

She attributed success to the support of friends, and to the fact that she finally learnt about calories. "On previous diets it was a matter of blind obedience. I didn't understand any of the naming. But when I learnt about calories I was eventually able to plan my own low-calorie menus." It's that familiar idea of helping people to help themselves once more.

### Raising wind

Things cannot be all that black if *The Financial Times* can find time between reporting our economic malaise to sponsor a yacht race to Australia. Four ocean racers will be attempting to break the London-Sydney record of 69 days set by the clipper *Passarich* in 1895, returning to London the long way round the Horn.

Britain is being represented by a 14-man combined services crew skippered by Mike Gill, a 27-year-old captain in the Royal Engineers, having no experience of their own they have borrowed Chay Blyth's Great Britain II, the custom-built for sailing round the world's fastest ship which completed the circumnavigation two years ago

only six days outside the clipper record.

Gill, who was entertaining visitors on board in the St Katherine's Yacht Basin yesterday, while the crew of French entry moored near by worked frantically on last-minute preparations, said that the venture is costing some £45,000, all of which has to come from donations and sponsorship. So far £23,000 has been raised, enough to get to Sydney but not enough to race back again.

One of the major sponsors is a tobacco firm which imports Cuban cigars: Gill will deliver a box of their Havanas to their agent in Australia, the idea being to prove that the aluminium tubes in which the cigars are packed are perfectly watertight.

The Open Air Theatre in Regent's Park ask us to make it clear that Judi Dench's appearance at the Edinburgh Festival in place of Vivien Merchant next month does not conflict with her appearance in their readings of *Swan* Mr. Shakespeare next week.

### Soothing

With delight in mind, rather than economy, Mirabel Cecil had her second test of hors d'oeuvre at the Connaught Hotel. She reports: "One goes to the Connaught Hotel for the full Connaught Treatment, not does one count the cost. Some would say what a waste to go there just to eat hors d'oeuvre. In fact this was several dozen days of the Year this summer."

For a start there many waiters as custom the Grill Room and the us a guided tour round d'oeuvre trolley. The waiter had said that it be in order as a main hors d'oeuvre as a main but there was a minimum charge of £3 a la He hesitated only for for our agreement he placed our small plates large ones which were heaped with delicious things; not just the usual dine, red cabbage, Russian routine, but tiny rolls of crisp pancakes with cheese celery inside amongst goodies.

Then, fearing that I had taken enough, he pressed more—or would I like pâté? Whereupon he s into a delicious sipper rack of hot toast appear well as crusty rolls. The waiter congratulated us o choice: "Just the thing for hot weather."

Served throughout was peccable: cream for my s was provided by Julie in a white apron in the s who emerged from the kit with an earthenware bowl cream and a silver ladle. It was expensive—of cou but there was more than en on our plates for a good a and this is one of the soothing dining-rooms London.

One of the MSc courses at London Business School called Quantitative Meth Assignment Exercises. One the students says this is obfion for sums.

PH



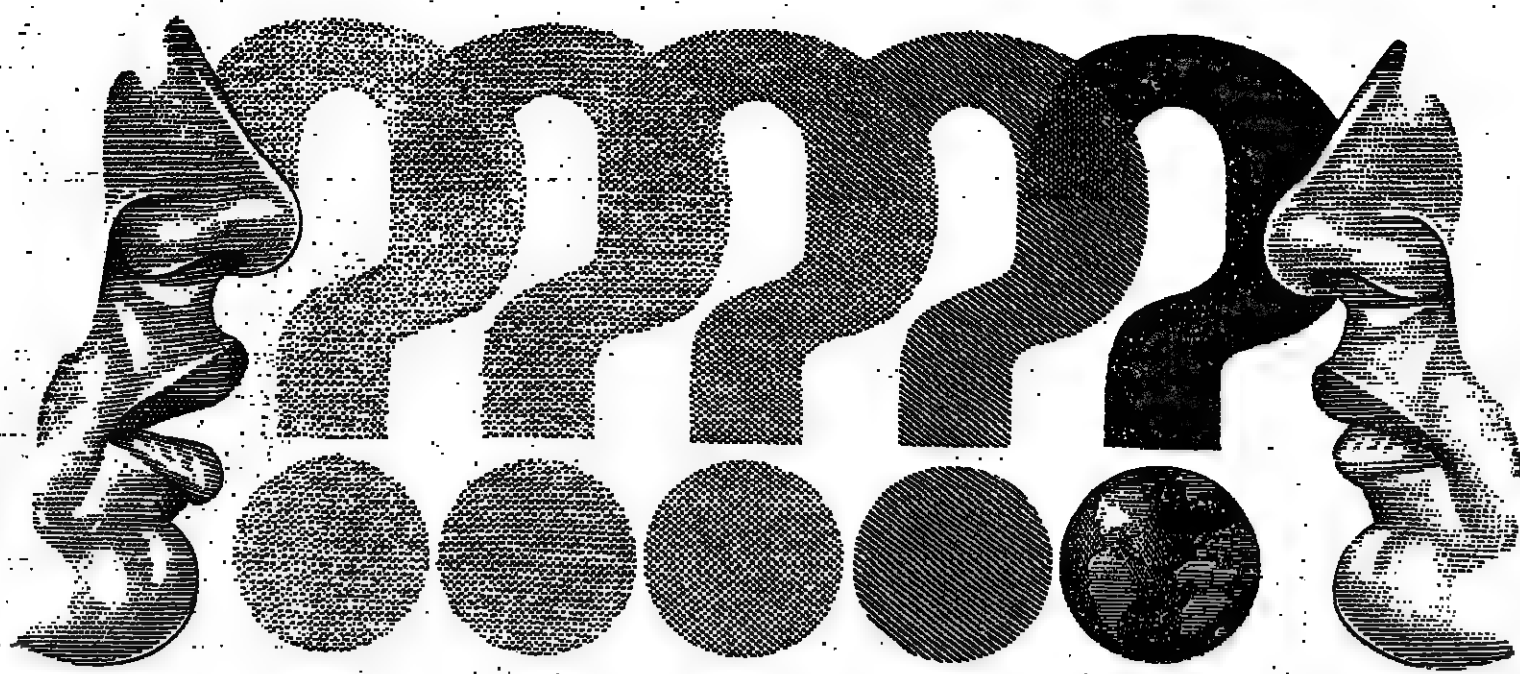








# The dialogue of science



Bill Sanderson

The 137th annual meeting of the British Association for the Advancement of Science, which opened last night at Surrey University, Guildford, is the first such meeting to be attended by the heads of the five research councils—agricultural, medical, natural environment, science and social science. An article on the following page of this Special Report examines the work of these agencies and the often conflicting priorities of research and teaching in a university context.

The report also discusses some of the other areas in which scientists strive to maintain a dialogue, with each other and with society. It is introduced by Pearce Wright, Science Editor, who looks at the theme of Sir Bernard Lovell's presidential address at Guildford: man's role "in the centre of Immensities, in the conflux of Eternities".

position. True, there is a universality about the concepts and language of pure sciences; these transcend frontiers created by historical events. But it would be foolhardy to believe that a group of individuals exists which is capable of forming a supranational or international scientific community and is devoid of the usual conflicts of politics and ideology.

The notion begs two issues. One is that science and the state have become

inextricably linked. Second, there is no such thing as the impersonal scientist. There are plenty of instances, including the letters column of *The Times*, to show that scientists are not notably more objective than anyone else in dealing with topics not within their own speciality. However, those who join discussion should be as warmly encouraged as the far higher number who are blinkered by their narrow speciality.

The indifference caused

While it is understandable for the scientist to address a claim to new knowledge and discovery to his professional peers for judgment, there is an equal responsibility—or possibly a greater one—because of the privileged position society accords the academic—to explain the implications to a wider audience.

Apart from journals, newspapers and broadcasting, the opportunities for public discussion are woefully inadequate. Over the past few years the British Association for the Advancement of Science has been endeavouring to play a role in this process. Carefully the past few presidents have taken the opportunity to raise a debate on matters central to our health and welfare.

Sir Bernard Lovell, Professor of Radioastronomy, Manchester University, took the discussion one stage further last night in the opening ceremony at Guildford Cathedral to this year's annual meeting of the association at the University of Surrey. He posed for many scientists an unthinkable question: can man survive for long the consequences of the continued probing of the scientist to break through the barrier that has been reached in the attempt to compre-

hend the centre of immensities—taken from Sartre's *Resistances* with Thomas Carlyle's inquiry "What is Man? who sees and fashions for himself a Universe, with starry spaces and long thousands of years, as it were, swathed-in and inextricably over-shrouded; yet it is sky-woven and worthy of a God. Stands he not thereby in the centre of Immensities, in the conflux of Eternities?"

It was written a century and a half ago about the same time as the first meeting of the British Association. One hundred and fifty years is a tiny interval of time in the history of the human race and even less significant in relation to the 4,500 million year history of the earth. "Yet in this short and cosmically insignificant time we have been brought to the centre of immensities", Sir Bernard said.

He went on to question whether man has reached a fundamental barrier in his attempt to understand the universe in a physical sense, and indeed whether he can survive for long the consequences of probing to break the barrier. Explaining his concern, Sir Bernard spoke of the growing interest and importance of the study of other possible life in the universe. The topic...

Recently astronomers using radio-telescopes to look at clouds of gas known as nebulae in our Milky Way discovered simple molecules formed by the combination of hydrogen and oxygen. Different kinds of molecules including water were soon detected together with other complex substances in these gas clouds suggesting, very forcibly, that the basic material for organic evolution exists in space.

Another part of the story emerging from the work of other groups of astronomers shows how planetary systems like our own solar system can evolve from these gas clouds, and these planetary systems should be a common feature of the universe. Hence the discovery of complex molecules essential to organic evolution in nebulae from which stars like our sun can be born has been a stimulus to those looking for evidence of extraterrestrial life on associated planets.

Sir Bernard Lovell said: "My personal judgment on the worthwhileness of such effort with our present equipment and understanding of the problem is reserved." His concern is with the more opportune and geological issue of the ex-

The whole blame is not being put on scientists for things not being better, but they are indicted by angry, frightened and frustrated laymen—and for that matter some groups of fellow scientists—for not helping to avoid disaster.

Advances in medicine have contributed to an increase in the world population. Unfortunately, no comparable progress has occurred to provide the food for the million

more mouths: in fact the cultivated area of the world has been decreasing rather than increasing, thus two out of three people do not get enough food. This sort of paradox reflects the ease with which achievements in science and technology can be applied uncritically.

Science is admired by the man in the street if it yields results like new drugs. Unfortunately, many scientists, technicians and almost all the consumers of domestic and industrial gadgets pay little heed to the philosophical basis of the sciences as a specific method to search for truth. A vital ingredient of that search is the duty of the researcher working to make his findings public for discussion. Pure science is a quest for discovery of the unknown; therefore to suggest a programme for its progress may sound like a contradiction in terms.

Science determines how and where most of us earn a living; it controls what most of us eat and how we spend our leisure hours. Science even has an influence over our thoughts. More than a century ago, when the world was more peaceful, the influence of science on the country was scarcely support a nation of 10 million.

General terms we all know a literate society has emerged, mostly from the ravages of the advances in medicine and public health, but it has gradually been from the worst of the industrial

revolution by new machinery on a population of 55 million. It is fed by improvements in agriculture and animal breeding.

The enormous impact of science and technology on our lives is largely taken for granted. Indeed, it is not things go wrong in industrial stagnation.

In our failure to deal with a social disruption, urban decay, and the threat of nuclear conflict and irreparable damage to our surroundings begin to be

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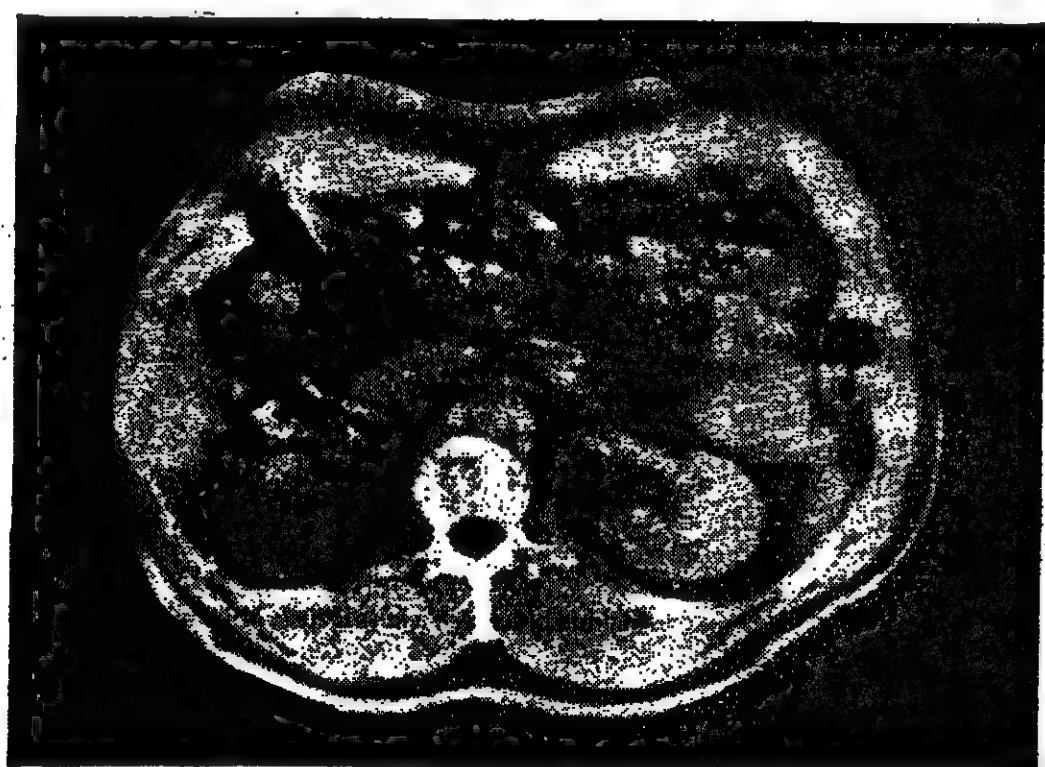
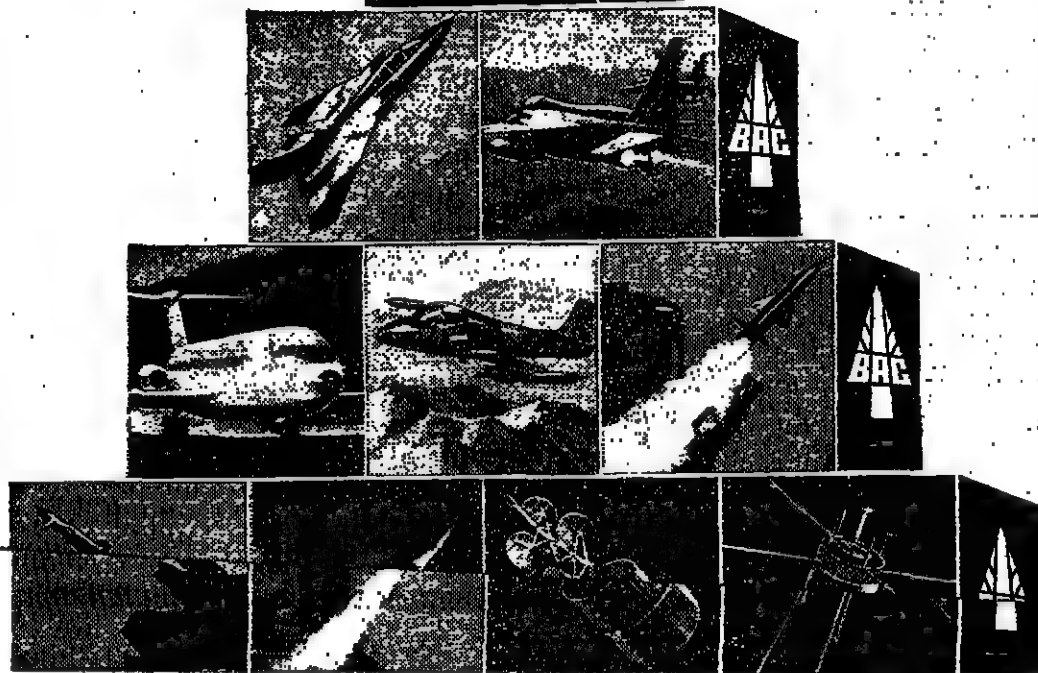
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## Rift between research and teaching

by Pearce Wright

Almost all the questions of most interest to speculative minds are such as science cannot answer, and the confident answers of theologians no longer seem so convincing as they did in former centuries. This observation by Bertrand Russell in the *History of Western Philosophy* was followed by an avalanche of questions. Is the world divided into mind and matter and, if so, what is mind and what is matter? Is mind subject to matter, or is it possessed of independence? Has the universe any unity or purpose? Is it evolving towards some goal? Are there really laws of nature or do we believe in them only because of our innate love of order? Is man what he seems to be the astronomer, a tiny lump of impure carbon and water crawling on a small and insignificant planet? Or is he what he appears to be Hamlet? Is he perhaps both at once?

Quite clearly the modern scientist makes no pretence that some sudden breakthrough in research may occur to give an insight into questions which are as old as philosophy itself. However, there are other issues of great interest for speculative minds even if the topics do not have the cosmic scale of Russell's inquiry. Indeed some people may well argue that to bring relief from disease, hunger and poverty through research in medicine, agriculture and social sciences provides a more direct insight into the philosophy of understanding human kind.

The man in the street is keenly aware of some inadequacies reflected by our inability to cure cancer and arthritis, or to devise materials for industry to resist corrosion and fatigue. So there is an enormous range of research to be done. The difficulty comes in deciding how to allocate limited resources to cover the essential topics. Universities are the training ground for nearly all research workers, even though the research carried out by a graduate may ultimately be in an industrial laboratory or research institute instead of a university department. However, the fundamental studies conducted at universities provide an important element in teaching and maintaining a vitality in higher education. The two activities of research and teaching are intended to be mutually self-supporting. The cherished belief of universities and their ideal, but the concept has stood the test of time well.

With the increase in universities and polytechnics some severe problems have arisen in maintaining the balance of research and teaching going hand in hand. There is not enough money to support more than a fraction of research proposals, and those responsible for allocating money for research have a policy of selectivity in choosing where to give grants. Should any of this be more than passing interest to the non-academic, provided someone accounts for the public money spent? In my view the answer is "yes" because the academic world provides the last truly independent source of informed opinion. This is the opinion to counter committed views of government and industry on controversial issues of the environment and public safety as well as politics and social affairs. Is there a more compelling reason for sustaining the present scheme?

### Universities face many conflicts

The money spent on university research is only a fraction of that allocated to government laboratories and industry and the amount for defence research dwarfs everything else. Receiving the smallest share of the cake, the universities face many conflicts in deciding which research to encourage. Funding of university research starts with the Department of Education and Science, which distributes money two ways. Grants are given through the University Grants Committee for capital investments. The five research councils are voted a science budget which has grown from £54.6m to £170.9m in the past 10 years. The research funds are distributed between universities as grants of a long or short-term nature, research contracts, postgraduate studentships and fellowships, the provision of certain large research centres used by universities as a national service and contributions to large international centres like the European Centre for Nuclear Physics (CERN), near Geneva, and the European Space Research Organisation. The five councils are the Agricultural Research Council founded in 1931 and the Medical Research Council, the three young ones dating

from the Science and Technology Act in 1965—the Science Research Council, Social Science Research Council and the Natural Environment Research Council. The purpose of them all is to foster research and postgraduate training in specific areas of national and scientific importance, to encourage the intellectual development of sciences as such, and to maintain a fundamental capacity for research. The decision for direct support by a research council to a university or polytechnic starts with individual academics or groups of staff who submit applications for grants. The successful proposals are selected on an assessment of merit, timeliness and promise as judged by the academic's peers who constitute the board's working groups and committees of the council. Inevitably, there is periodic criticism of some choices. Criticism often comes at this stage from a disappointed scientist, university or college when an application is rejected. The charge is simply that university departments with members sitting on committees judging research applications do far better than anyone else. A suggestion to overcome this has been made to the select committee inquiry on research. It is that not more than a third of the members of a grant-awarding committee should have sat on it before and a third of the members should be non-professional. The intention is to avoid a "bugging" process which certainly seems apparent to critics of the Science Research Council. The idea is also to inject some younger attitudes into opinions guiding the direction of research. The effects of cuts in the money for science are greater than the figures suggest because a large part of the funds are not manoeuvrable in the short term. The amounts to be spent by the councils for this year (1975-1976) are:

Agricultural Research Council	£13.121m
Medical Research Council	£28.922m
Natural Environment Research Council	£19.182m
Science Research Council	£96.363m
Social Science Research Council	£8.719m

The councils have selected certain areas of special promise or national need for their support. For example, in the physical sciences, the Science Research Council has focused on astronomy

the academic side control engineering, manufacturing on the one hand and this year's expanded Science Research Council shows a drop in vision for nuclear and an increase in money, space and search. In part this is an intention to good international opportunities through the European Research Organisation. The Agricultural Council is unique in that more than 40 years was in existence of private institute university groups recruitment aid. An amount of rose development has enormously, the money is still spent on agricultural to which other have been added only 6 per cent of spent on agricultural goes to university compared with more cent on the directed research. Involvement with the Medical Council varies more than 60 support is concentrated universities or 1 university institutions which have medical departments with highly able scientists with a collaboration with departments tend support. Thus genetics is concentrated Edinburgh, Oxford and Le that for applied is in Sheffield bridge. The Natural Research Council specific brief is science of the through geology, sics, of the sea and biological e and marine biology and the plant and of the land and the trial ecology, atmosphere, thology and physics. The Social search Council all the others important aspects built up a new own institutes. search support through the u addition, the nearly half of postgraduate fellowships: proportion of the other court this ac

## Industry and academics must get together

The economic health of the nation, in terms of developing science-based industries, with industrial experience in modernising existing industries and studying scientific management methods, depends on a good relationship between industry and the universities. Collaboration between the two is not always easy, and experience in Britain has been less fruitful than in the United States and Japan where great efforts are made to turn basic research into technological development. An important attempt at better collaboration is being made with the building of the Cambridge Science Park, a £650,000 Trinity College venture designed to attract science-based industry to the university environment. The object is to capitalize on the university's scientific skills, equipment, libraries and overall stimulation of ideas for applied commercial research as well as fundamental academic studies. Four companies are working on a carefully planned site, on the northern edge of Cambridge, to develop a mixture of science run by business-minded scientists and scientifically minded businessmen. Approaches to fostering industry-university cooperation will include the use of academic staff as consultants, the use of industrial scientists as lecturers and undertaking research on contract. A great deal of joint work is in progress. Every university and large polytechnic in the country must have several links with commercial organizations. They range from schemes such as that devised by ICI, in which parallel work in very advanced biomedical topics and basic chemistry is supported in university departments and company laboratories, to a specific assignment from a small company to solve a corrosion problem. Nevertheless there is much criticism on both sides about the way scientific resources are managed. The discussion was important enough for an inquiry by what became known as the CBI/vice-chancellors' committee. One task of the investigation was to discover the precise areas of industrial activity that were highly sensitive to research and development. Nearly all engineering departments have close relationships with industry in many ways. Departments of pharmacy, chemistry and social science also have good contacts. But despite the industrial importance of physics, the support takes for research in universities and industry in Britain, research associations, government agencies

and government laboratories are doing work that elsewhere would be done in universities. There are even fewer contacts with industry or staff with industrial experience in the remaining natural sciences like biochemistry, biological sciences and mathematics. Among the social sciences the closest links with industry are through business management interest. Research directors, however, are not particularly interested in the social sciences and people in industry are not in agreement how research in social science can contribute to industrial activities. The CBI/vice-chancellors' study identified three forms of collaboration deserving special attention—consultancies, joint research and joint appointments. Whatever form a joint scheme took, they concluded that the main barrier to successful collaboration was the lack of time. Both sides were prepared to devote to the union. Universities see an increase in contribution as the best way to improve mutual understanding. It is not so apparent on the industrial side that a demand exists for more university consultants. Experience in collaboration varies between countries. Very close and successful schemes occur in Germany, Scandinavia and the Netherlands between industry and universities, and partly because of the very high prestige attached to universities, partly because of a career structure to encourage movement of staff between the two.

That trend raises the obvious question of whether it reflects an attitude that industry is socially irresponsible or whether the main cause lies in determined effort within the universities to retain their best talent. The CBI/vice-chancellors' analysis of the situation suggests that applied research and development in industry is as intellectually stimulating as work in universities. The criticism is accepted, however, that industry often does not give the young graduate the responsibility which he feels capable of taking. Perhaps the most serious gap between the industrial and the academic was disclosed by an attitude survey among firms of their impressions of science and engineering graduates. About half of them thought the graduates' ability to communicate both orally and in writing was unsatisfactory. In fact, industrialists argue that an ability by the scientist to explain science to the non-specialist or layman will help to develop self-confidence, and is especially if a graduate is to be given responsibility early in his career. Another serious shortcoming among scientists, and to a less extent engineers, is ignorance of technological economics. The subject is seldom taught outside engineering departments. The part of the attitude survey directed to universities provoked some interesting comment. One question in industrial activities was a positive factor in considering staff for promotion. A total of 32 universities said it would be considered a factor, although several qualified it by saying it would be relevant for only certain departments. Nine of the technological universities were in favour and one said it was "considered on an equal basis with published papers". A Welsh university said it was "one of four specific factors considered in promotion to

senior lecturer. Copies were sent to 16 replies success in industries into account. Joint activities raise issue with university freedom to publish. The issue cannot be played because publish in part ability expects academic who privileged society. Most take the view that always retain publication, and of work for necessary part. Attitudes termed strict work vary. Unions individual knowledge freedom, what happens, states merely be allowed for procedures: effective measures plotted before.

### Different types of support

Although the extraordinary success of the United States has been an example to follow, there are fundamental differences between British and American institutions. By tradition the American institutions are more in outlook and have closer links with their immediate locality, and that has a profound effect on the outlook and attitude of their scientists. A comparable approach in Britain is usually restricted to the departments having close relationships with industry in many ways. Departments of pharmacy, chemistry and social science also have good contacts. But despite the industrial importance of physics, the support takes for research in universities and industry in Britain, research associations, government agencies

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## Why a code of practice is needed for genetic engineering

One of its last actions in the summer recess, government nominated a committee of experts to draw up a code of practice on the use of genetic engineering. The intention is to prevent a sudden rush into the new techniques in microbiology which individual genes can be snipped out of simple organisms like bacteria and transferred to others. The code is expected to be ready by the end of the year. It opens up potential opportunities in medical research, agricultural development, and some disturbing questions answered before research is allowed to begin unchecked. Funding research into devising a method for manipulating genes can be done with the group of bac-

teria *E. Coli*, which must be the most widely-used micro-organism for laboratory experiments. Many strains of *E. Coli* exist and many of them are normally present in the human intestine. There are also virulent strains, including some that cause fatal food poisoning. The doubts about genetic engineering lie in the possibility of creating organisms that are more virulent than any in existence and against which there is no antidote. Anxious about the risks were first raised by scientists in the United States and then in Britain. As a result there have been government-supported investigations in both countries. The inquiry in Britain, under Lord Ashby, proposed the action now taken by the Government to create safeguards. The fears about safety are not simply the notions of congenital pessimists. Plenty of circumstantial evidence

exists for suggesting that new virulent strains of organism could be created, thus causing a public health hazard. Earlier troubles from bacteria came through the process known as "transferable drug resistance". As various types of antibiotics are widely used, strains of organisms begin to emerge showing resistance to the drug. Some crucial research in London a few years ago provided one explanation of how resistance, or the R-factor, can be transferred between strains of organism. More recently the smallpox victims who were infected after a laboratory worker had become unwittingly contaminated, and so transferred the disease, provided a warning about handling harmful materials in biological research. Plenty of experience has been obtained in coping with the difficulties of working with such dangerous specimens.

There are, of course, laboratories working with highly dangerous specimens as a matter of routine in medical research. Perhaps the best equipped centre in the world for handling such biological agents is the Microbiological Research Establishment of the Ministry of Defence, at Porton Down, Wiltshire. Scientists there have investigated the most deadly viruses and organisms known. The methods and apparatus for some of their experiments are almost certain to become a standard for genetic engineering.

The ethics of research in biology and biomedical studies is not a new question, but advances in such things as birth control methods and organ transplants raise different issues. No new medical treatment can be introduced without going through a period of trial and experiment leading eventually to trials on man. Such tests can never be done without an element of risk. Elaborate precautions are taken to show that drugs are safe and that an incident such as the Thalidomide one cannot happen again. Manufacturers are also expected to show that their compounds are as effective as they allege them to be. No one would take exception to that. However, it does mean that trials must be made not only on animals and in the laboratory but also on man—and on a large scale and at various stages of development.

Properly designed "double blind trials", which figure as a description in most papers published on drug tests, must include people who are "controls". The control is given a placebo from which he will derive no benefit, other than perhaps a psychological one. Thus the essential activity of showing the effectiveness of a treatment is carried out, but a range of ethical questions is automatically raised. One of the arguments justifying such trials for drug development accepts the notion of informed consent as its foundation. Exactly how that can be defined is another matter.

To start with, it depends on the level of understanding of the people who are being asked to cooperate. The amount of detail which can be given about a test is almost certainly limited so as not to invalidate the investigation. A different and more complicated set of arguments is provoked when the use of foetal material for research is proposed. At one level the subject is tied to new legislation in draft form on the protection of unborn child.

Without going into that aspect, it might still be worth considering why research with certain tissues is important in specific lines of inquiry. The first justification is to determine whether certain drugs, vaccines and other environmental changes have an effect on the foetus. In general, the placenta provides an efficient barrier to harmful substances crossing from a mother to her developing baby. However, there are agents that can cause damage at certain stages of pre-natal development. Even after exhaustive testing of animals, it is often not possible to give absolute guarantees about the action of a new chemical. If an example of an important advance is needed to support the argument, then one of the best must concern work on poliomyelitis vaccine. It was an from an autopsy. But as the Thalidomide tragedy made clear to the public, the living foetus is a patient as far as the doctor is concerned. There are special circum-

stances in which the doctor has to try to treat that very special patient either to save life or to ensure that certain injury does not happen before birth. The diagnosis, treatment and prevention of a number of conditions during pre-natal growth has been one of the great achievements in medicine. Much of the work surrounds the development of genetic screening so that people can be identified who have a predisposition to transmitting particular undesirable genetic characteristics. Dietary adjustment, avoidance of certain drugs, special medical care and other practical steps can be taken to avoid the ill-effects in many instances. But quite clearly some rigorous guidelines have been needed with the introduction of such biomedical activity.

P.W.

## New space probe leaves man behind

By putting observation platforms beyond the influence of the Earth's atmosphere, space exploration could liberate the astronomer from what he called peering at the heavens through the equivalent of a very dark and dirty glass. This is one issue on which a clear division exists in the scientific and space communities. Scientific satellites can be built for a small fraction of the costs of manned space agency has launched 300 craft into Earth orbit, including satellites for European countries and Canada. These orbiting satellites have discovered and mapped in detail the highly complex magnetosphere surrounding Earth and the effect of solar radiation of the ionosphere and atmosphere. Other spacecraft placed above the obscuring curtain of the atmosphere have looked far into space to study infra-red, ultra-violet, X-ray and gamma-ray sources to learn more about the stars, galaxies, pulsars and quasars. Automated spacecraft have orbited Mars and have flown by Venus, Mercury and Jupiter, contributing to an understanding of those planets and why they are different from the planet Earth. Other far-ranging spacecraft have mapped the Moon in detail and observed the Sun and the solar wind from widely separated points of the solar system. In the study of near-Earth phenomena balloons and sounding rockets have been launched from many sites all over the world to carry instruments to map a profile of the atmosphere, to collect evidence of particles bombarding the upper layers, and to look at stellar objects. With this intensity of activity the scientific experiments that began with landings on the Moon are sometimes overlooked. Yet a special Lunar Programme Office is responsible for continuing the collection and distribution of data from the experimental packages left on the Moon's surface by Apollo 12, 14, 15, 16 and 17. The lunar office also has to coordinate the distribution of results from the principal investigators in a dozen countries who have examined lunar samples and analysed other data being transmitted back from the Moon. The curator of the lunar samples at the Johnson Space Centre, Houston, stores and prepares samples of rocks and soil returning in this exploration.

of the National Aeronautics and Space Administration. He also maintains that "the United States is deeply embedded in the social, political and economic fabric not just of America but of the world". Dr. Hearsh gave three examples of future programmes designed to bring benefits to a world in which a 2 per cent annual increase in population is going to triple the number of people in 30 years, thereby increasing food requirements by a factor of six. "It would appear," he said, "that space activities might contribute to an increase in food production with improved weather and water availability forecasting as well as more efficient use of storage and transportation systems." Describing the present main application of meteorological satellites for short-term forecasting, he suggested that the coming generation of spacecraft would assist efforts to predict seasonal and climatic trends. Because climatic trends had such obvious social and economic importance this was an ideal opportunity for international cooperation. His third example concerned studies of the evolution of planets, satellites and their atmospheres. There were fascinating and important challenges for research into our evolution in the solar system.

The first mission to orbit another planet was made with the launch of the Mariner Mars craft four years ago. Mapping and photography from those journeys decided the plans for the Viking project to send two vehicles to Mars this year. On reaching the planet the two vehicles are due to release two spacecraft which each is carrying—one for making a landing and the other for continuing in orbit. Thus an automatic laboratory would be placed on two sites on the planet and each site would be monitored by its sister spacecraft in orbit. The lander and orbiter concept is the same as that used for sending the first scientific expedition to the Moon. Results from the automatic stations provided the data by which the later landing sites for the manned Apollo craft were chosen. Enormous differences have to be taken into account in preparing for Mars. The journey takes almost a year and the radio transmissions over such a great distance produce special problems. Information is sent back as a series of coded pulses—even pictures are relayed as a train of these pulses, which are reassembled in a computer before being shown in this exploration.

A special unit at the Microbiological Research Establishment, Porton, for the safe handling of virulent and dangerous bacteria. Right: Ariel V, Britain's fifth scientific satellite in the Anglo-American collaborative space programme, undergoes balance tests in the Science Research Council's laboratory at Appleton, near Slough. A model will be on display at an exhibition of research council projects opening tomorrow at the University of Surrey.

discovered and mapped in detail the highly complex magnetosphere surrounding Earth and the effect of solar radiation of the ionosphere and atmosphere. Other spacecraft placed above the obscuring curtain of the atmosphere have looked far into space to study infra-red, ultra-violet, X-ray and gamma-ray sources to learn more about the stars, galaxies, pulsars and quasars. Automated spacecraft have orbited Mars and have flown by Venus, Mercury and Jupiter, contributing to an understanding of those planets and why they are different from the planet Earth. Other far-ranging spacecraft have mapped the Moon in detail and observed the Sun and the solar wind from widely separated points of the solar system. In the study of near-Earth phenomena balloons and sounding rockets have been launched from many sites all over the world to carry instruments to map a profile of the atmosphere, to collect evidence of particles bombarding the upper layers, and to look at stellar objects. With this intensity of activity the scientific experiments that began with landings on the Moon are sometimes overlooked. Yet a special Lunar Programme Office is responsible for continuing the collection and distribution of data from the experimental packages left on the Moon's surface by Apollo 12, 14, 15, 16 and 17. The lunar office also has to coordinate the distribution of results from the principal investigators in a dozen countries who have examined lunar samples and analysed other data being transmitted back from the Moon. The curator of the lunar samples at the Johnson Space Centre, Houston, stores and prepares samples of rocks and soil returning in this exploration.

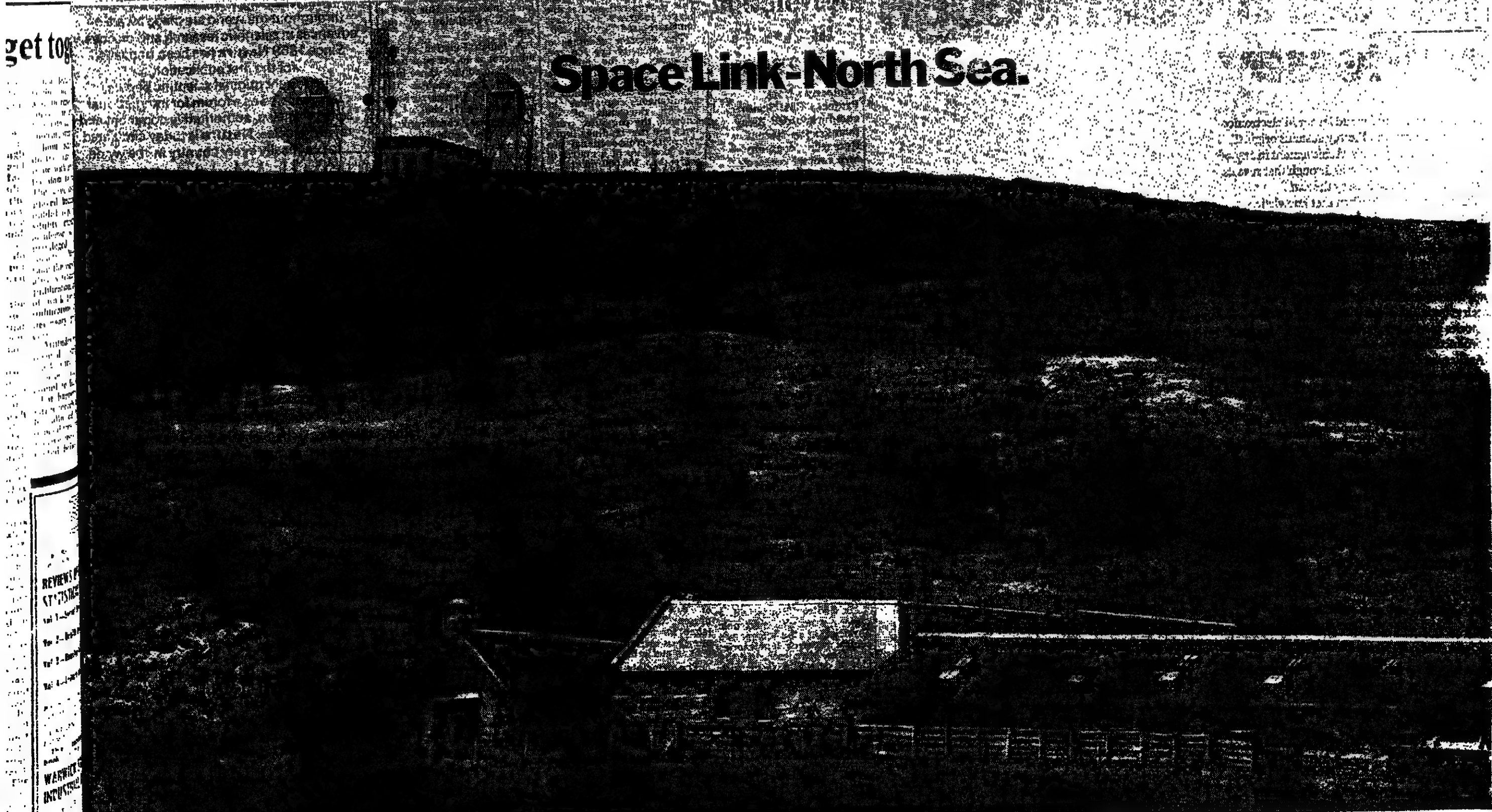
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### Future for plastics is comfortable

Company: Hille International.  
Project: polypropylene chair programme.  
Research: Shell Chemicals, Hille, GPG, GKN.  
Testing: Furniture Industry Research Association.

In the use of plastics in furniture the polypropylene chair programme begun by Hille in 1963 is recognized as a classic series. Designed by Mr Robin Day, design consultant to the company, the range is being extended next month with the introduction of a new indoor/outdoor chair for hot climates.

Throughout the programme a close collaboration in research, development and production has been maintained between the material supplier, the furniture company and its designers, the toolmaker and the moulder.

The commercial development of polypropylene dates from 1954 when Professor Giulio Natta, using organometallic catalysts similar to those developed earlier by Professor Karl Ziegler, produced polymers of propylene with useful properties.

For their work on catalysis and polymerization, which has had a profound effect on both the plastics and synthetic rubber industries, Natta and Ziegler were jointly awarded the Nobel Prize for Chemistry in 1963.

Polypropylene is one of the family of polyolefin plastics and was introduced to Britain by Shell Chemicals in 1958. It is a tough, resilient material which can be processed by normal thermoplastic techniques such as injection moulding.

Two main types of polypropylene are available, homopolymers and copolymers. Copolymers have a higher impact strength and are slightly less rigid than polypropylene known as "Katal" which is used by Hille for their new Polo chair.

Testing, testing... a Hille chair takes a pounding as part of the development programme.

The birth of the polypropylene chair programme was a series of discussions between Hille, Shell Chemicals, and the Furniture Industry Research Association at Stevenage. Was it possible to make chairs out of the new material? How should they be tested? Hille and Shell decided to go ahead and make them, and FIRA started devising a full testing procedure.

On the basis of technical information from Shell and FIRA, Mr Day designed the first model in the polypropylene series. "Boomerang" side flanges needed to be added to give strength; the material itself had to be engineered so that it could take the screws which attached the moulded shell to the base.

During the development of the various models which followed, refinements and improvements were made. The designers, the material suppliers, the toolmakers and

the moulders. The rate and angle at which the material was injected into the mould, for example, could have a substantial effect on the appearance and strength of the finished product.

That type of development was very much a matter of a group of individuals' knowledge, rather than the product of a large company research department. Hille has no research department other than that carried in the heads of Mr Leslie Julius, company chairman, and Mr Day.

Certainly the "development" part of research and development is a large part of the furniture designer's work, and his work is important to the plastics company's scientists.

Just as the characteristics of the basic material are the result of Shell Chemicals' research, so the development of the moulding process to produce the required shape is the result of the plastics company's scientists.

A completely new development in X-ray diagnosis has led to the successful introduction of a brain examination system which, compared with conventional radiology, gives much greater accuracy and is more comfortable and safer for the patient.

"This new radiological method," the *British Medical Journal* reported last year, "is revolutionizing investigative neurology and ophthalmology."

More recently the same principle has been applied in a system which gives similar advantages in the examination of tissues in other parts of the body.

The EMI-Scanner stems from basic research carried out in 1968 by the company into pattern recognition and data-retrieval methods. An optical scanning method has been devised for recognizing printed characters, and the possibility of applying this in other areas was examined. One such area was that of diagnostic radiology.

Mr Godfrey Hounsfield, a senior research electronic physicist at the company's central research laboratories at Hayes, Middlesex, had the idea of detecting X-rays with a crystal instead of film. It had been known for many years that certain crystals emitted visible light on exposure to X-rays, but this had never been exploited in diagnostic radiology.

In the words of the *BMJ* report, "Hounsfield postulated that by scanning a patient with a narrow beam of X-rays and a detector crystal in such a way as to allow a computer to extract the maximum amount of information from the detector readings, he would be able to build up a picture in which the grey levels could be calculated to a degree of accuracy 100 times greater than could be achieved in conventional radiology."

In essence, the system examines the brain in a series of thin, cross-sectional slices. For each slice, the X-ray tube and detectors traverse linearly across the

patient's head in 240 steps. This is then repeated at one degree intervals as the system is rotated through 180°.

The detector readings of X-ray intensity are fed continuously to the minicomputer which is an integral part of the equipment. By solving literally thousands of simultaneous equations involving thousands of unknowns, the computer translates the raw readings into a complete cross-sectional picture made up of a matrix of more than 100,000 points.

This is a vast improvement in accuracy compared with conventional techniques using X-ray film, which can differentiate only a few large differences in density—between bone and blood or fat, for example, but not (without the painful injection of special substances) between the different types of tissue within the brain.

Two key elements in the success of the scanner were the original idea, and the power of the minicomputer, which enabled the thousands of readings to be processed rapidly. The experiments had confirmed that Mr Hounsfield's idea was basically sound, the task was the painstaking application of existing science and technology to the many problems which remained before a usable system for hospitals could be developed.

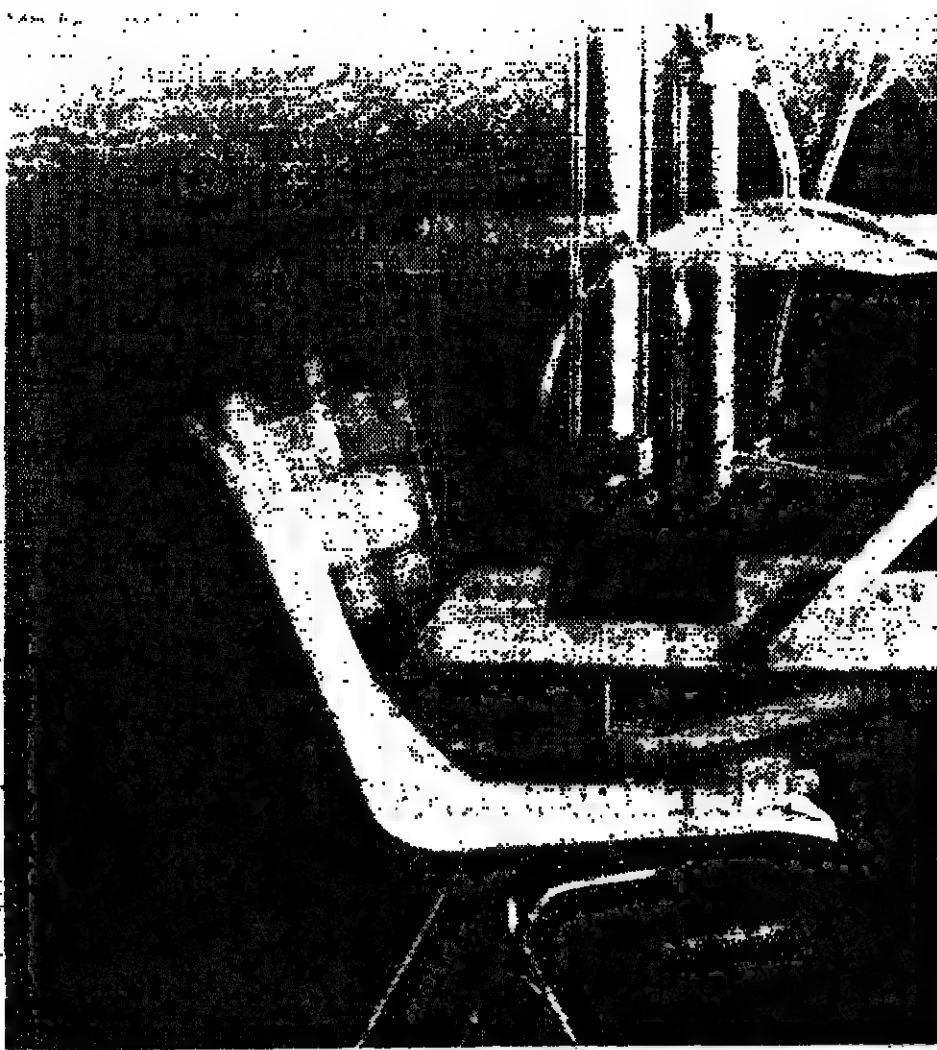
Accuracy and more accuracy, in measurement and positioning and control, were at the heart of this development effort. Continuous refinement of the mechanism, X-ray and electronic components of the system was demanded, together with extensive development and checking of the computer software.

Resolutions of the scanner was improved from a starting level of 80 x 120 elements to the present 320 x 120. The time taken for a full exposure of one cross-section of the brain is four and a half minutes.

The principle of the scanner was clearly applicable to the X-ray examination of various parts of the body. However, the brain scanner was developed first for two main reasons. First, the problem of body movement was not great; second, the scanner's ability to show subtle variations in tissue density in a painless process offered outstanding benefits compared with alternative techniques.

In moving to the body scanner, the EMI researchers have developed a system which rotates in 10° steps and takes only 20 seconds to complete a single-section full picture.

Accuracy of measurement is here an even bigger problem, since the variation in density from air around the body to the bone is about twice as great as in the brain scanner, where the head is surrounded by a water-filled cap.



Testing, testing... a Hille chair takes a pounding as part of the development programme.

### Punctures sealed and healed

Company: Dunlop.  
Project: Denovo wheel and tyre.  
Research: company staff, and Industrial Unit of Tribology, Leeds University.

A major advance in motor safety and convenience was provided by the introduction of the Dunlop Denovo wheel and tyre, which enables drivers to continue driving up to 100 miles at 50 mph after a puncture. Company research and development leading to this innovation was supplemented by work at a specialized, university-based industrial research unit.

One of the key design features of the Denovo tyre is the use of liquid lubricant inside the tyre. This acts not only as a lubricant but in a number of other important roles; its development owes much to the skill of specialists at Leeds University.

Much work on the theory of elastohydrodynamic lubrication—relevant in understanding the "aquaplaning" effect of tyres on wet roads and runways, for example—has been done at Leeds. Duncan Dowson, Professor of Fluid Mechanics, is an acknowledged authority in this field; the Dunlop work was arranged by way of a contract with the Industrial Unit of Tribology at the university.

A prime function of the lubricant is to lubricate the internal surfaces efficiently, to minimize the friction between the wall and the tread which would otherwise destroy the tyre if it were to be driven deflated over any distance.

The fluid in effect has to separate the two surfaces completely—giving what can be termed an "internal aquaplaning" effect. Second, sealing additives are used so that the lubricant will temporarily seal the vast majority of puncture holes.

Third, it was decided to

flat running tyre (about 80°C) to vaporize volatile components added to the basic lubricant. This gave a partial re-inflation of the tyre.

A fourth function of the lubricant is to act as a heat transfer medium, whose high specific heat enables the rubbing and flexing surfaces to remain fairly cool.

All these characteristics had to be combined in a fluid which was not too expensive to produce, and was non-toxic, non-corrosive, non-flammable, and non-detrimental to rubber, steel and skin.

Tom French, Dunlop's technical director, who with his colleagues Eric Mitchell and Reginald Edwards received the Mac-

Robert Award of the Council of Engineering Institutions for their Denovo development) identified four main areas in which the Leeds unit's work helped materially.

These were in determining: the final lubricant properties (albeit blended with volatile additives to provide vapour inflation); the type of lubrication actually occurring between the mating rubber surfaces; this involved determining the film thickness, surface damage effects, temperature at the interfaces.

Other factors were specific quantities of lubricant and volatiles required to cope with minimum running distances, to avoid lubricant starvation under all driving conditions, to make use of net cooling effect of released lubricant, and possible surfacing configurations of mating surfaces and effect of debris in the tyre on lubricant.

Although ideally the internal mixture could operate permanently loose in the tyre, Mr French said, "in practice to avoid unwanted vibrational effects, it is necessary to retain some material in a suitable sealed state."

"We have elected this partly by use of a gel sprayed inside the casing, and partly by development of small canisters each holding 20 cc of liquid blown on a light harness is pushed on to one of the divided wheel."

"The system is highly low cost, provides servicing and repair and is highly effective special percussion valve was designed to liquid under pressure geometric condition the tyre loses air."

Successful development of the multi-purpose was a key element in the design objectives wheel/tyre combination whole. These objectives provide much vehicle control following sudden blowout or leak; then to provide motorist with a "guaranteed" mobility to continue journey safely with couple this 100 p. assurance of safe normal use with "safe" factor so to abuse of the deflating excessive or too-severe ing is not dangerous.

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# Attempts to overcome lack of rapport must be encouraged

by Pearce Wright

the leaders of the community in the States was prepared. Mr. Udall's chief target was the National Academy of Sciences, the scientific organization which was a recent appointment with the highest reputation in America. Science, by Mr. Udall, a former member of the Royal Society in London, the academy is described as a self-perpetuating society of "eunuchs" for which each year elects a limited number of scientists to membership in recognition of outstanding work. Whereas the academy has

a formal voice, the advice to the British establishment through the Royal Society is given on a private, more ad hoc basis. Nevertheless, the same aura surrounds the two of them: that of providing independent, objective advice on controversial issues of special moment without yielding to political and commercial interests. The reason for the attack on the American scientific community is examined in the introduction to an investigation published earlier this summer in *The British Association*. The author, Mr. Philip Boffey, is a science

reporter who has worked on daily newspapers and periodicals including *Science*, the weekly magazine of the AAAS. The questions that Mr. Boffey raises apply as much to Britain as to North America. Differences exist merely because the centre of responsibility in the United Kingdom does not rest with organizations directly comparable to those in the United States. The National Academy of Sciences passes judgments on public issues—the safety and nutritional value of food, the effectiveness of medicines, the feasibility of controlling car fumes, the disposal of radioactive wastes, or the threat to the ozone layer from aerosols and exhaust gases of high-flying supersonic aircraft.

Issues of this nature are of worldwide concern. Yet few opportunities exist for adequate informed public discussion in which laymen can hope to have any influence on decisions affecting their future. If the community tends to feel helpless in the hands of specialists, it is understandable. Any effort to overcome this lack of rapport between science and lay opinion would be welcome. For this reason alone, the attempts of the British Association for the Advancement of Science to bridge the gap at its annual meeting this week at Surrey University must be encouraged. Like every organization which derives financial support from public funds, the British Association leans over backwards to avoid socio-political judgments. Yet the subjects on which the public seeks informed guidance, such as the wisdom of supersonic aircraft, genetic engineering, test-tube

baby research, continuation of atomic research for military and civil nuclear power stations and the development of new types of industrial chemicals, touch automatically on sensitive issues. There is no point in marshalling the technical factors in an understandable fashion without providing the forum for debate. In the early days of the nearly 150 years of its history the British Association thrived on controversy. Annual meetings were rustic, haphazard affairs. But at that time they were one of the main platforms for original

contributions on discoveries in science. The foundations of most contemporary science, from Darwin on evolution to Einstein on relativity, came in for a battering. Today the sciences are fragmented between many more disciplines, most of which have emerged only in the past 30 years. The presentation of new discoveries and ideas by research workers is made at first through the hundreds of specialist journals and societies that cover these subjects. As this pattern has developed, an organization like

# Sandwich courses strengthen university link with industry

by Alan Cane

and industry can of the full-time student population are taking sandwich courses. The proportion has gone up steadily, and it is a tendency I hope will continue. I think it is a damned good thing, not right for everyone, but for the majority of students it is right for two reasons: it provides the opportunity to see how academic theory is applied in practice; it is important psychologically that young people should see what life consists of and have experience of living and working with adults in an adult situation.

The university prospectus underlines Dr. Leggett's views, emphasizing: "We are firm believers in the sandwich principle and we believe there are few students who have not benefited immensely from a period of practical experience directly related to their studies." Surrey specialises in the "thick" sandwich, which means that students take four years to complete their first degree, the third year of which is spent in industry. They get no state grant for that period but are paid by their firms—and they are expected to earn their salary. Dr. J. George, senior industrial tutor in chemistry, says: "They can fairly be described as being of general degree standard and should be able to do a reasonable job of work and earn their salary. We ask that they are given a reasonably exacting job, are worked quite hard and are given some responsibility. They are employees and their work must genuinely be required by the company."



Surrey University, Guildford, where the British Association is holding its 1975 annual meeting. A growing proportion of students takes sandwich courses.

Mr. Philip Allison, university careers adviser, says the future rate in industrial placements is low, amounting to only a few cases in his experience. "Thin" sandwiches are offered by 75 per cent of former C.A.T.s. They consist of six-month spells of academic and industrial work alternating through the four-year course. Surrey tutors believe this is a less effective system—by the time the student has settled in it is time to change regions. A major advantage to the university of sandwich courses is industrial goodwill and sponsorship. Surrey has raised about 24m exclusive of grants from the University Grants Committee or the Science Research Council, and about £1,250,000 of that has come from industry. It has been a vital source of finance. The squeeze is on higher

education now, and the Government will give only a nominal sum for capital building programmes in the coming year. Dr. Leggett says the university is fortunate in having buildings for all the students it wishes to cater for; industrial money has gone into all the most recently completed buildings and has been Surrey's salvation. There is also a valuable exchange of ideas between industry and the university, although it is less easy to measure: a fair amount of industrial research money finds its way into the university, but it would be hard to judge how that is influenced by the sandwich course programme.

Sandwich courses also help the university in student recruitment: "A number of people come here only because they have read about the industrial year in the prospectus," Dr. Kenneth Stephens, senior lecturer in electronic and electrical engineering, says. For the industrial firm, the advantages are less clear cut. It may receive a nominal sum from the industrial training board for each student it employs, and it does get a year's work from a highly intelligent 20-year-old, but the chief benefit lies in improved graduate recruitment. Mr. Hugh Jones, assistant personnel manager for Marconi Communications Systems, says: "The sandwich course people fit in better than orthodox graduates." It is clear that industries like to employ sandwich course graduates. Mr. Allison says: "All the employers say that in comparison with most other students, sandwich course graduates seem more realistic and know what the world is all about. They are a lot more effective in interview."

at present, sandwich places are the first to go. Dr. Stephens says that some firms have kept sandwich students on purely on the basis of goodwill between the firm and the university. Dr. Laurence King, industrial tutor in biochemistry, who places students in the pharmaceutical and food industries, is especially worried that sandwich places are being lost: "Last year, for example, Lyons took six students, but this year they will take none. Next year could be worse than this."

The situation has been so bad that Surrey has been sending some of its best students abroad. Of the 29 chemical engineering students placed in 1974-75, eight went to South African firms, two to German firms and one to a Belgian firm. So retrenchment and redundancy worry the industrial tutors at Surrey with more than 300 industrial placements to find next year. The scheme may collapse, Dr. King says. For some firms it has collapsed already. Sandwich courses, like technological universities, depend on the goodwill of industry if they are to grow and develop. Surrey has based its sandwich scheme on that goodwill and a massive amount of work from its industrial tutors and both sides have clearly benefited from the bargain. It remains to be seen if the goodwill is strong enough to stand the financial buffeting of the next few years.

The author is Science Correspondent, *The Times Higher Education Supplement*.

# Man's role 'in the centre of Immensties'

It is a sad and ironical reflection that we have been brought to this stage by the use of devices which are themselves designed to destroy mankind. It was no peaceful endeavour, either in the United States or the Soviet Union, which gave man the power to launch scientific instruments into space, and it serves no purpose to imagine that space activities of these two countries today are innocent of military interests. He believes an almost nonexistent dividing line separates activities which could produce the greatest human disaster or mark a profound intellectual advance in the development of civilization. He also believes the deeper ambitions for the understanding of human purpose no longer exert such a dominating influence on our lives as they did for our forefathers.

Throughout the whole of recorded history a consistent thread has been the intellectual purpose of men to discover the nature of the universe. Today we refer to this as the cosmological problem, that is, how did the universe come into existence and what is its future? Hitherto man has attempted to give either a theological answer or to believe that the solution would be discovered by scientific observation alone. The contemporary argument whether the universe ever did have an origin or whether it is, and always has been, in a state of continuous creation has been clarified. But this has brought no imponderable conceptual difficulty. The observational evidence of astronomy—and

idea of a primordial fireball in the universe. The great difficulty is that, by applying the laws of physics as we understand them, our predictions are obtained about conditions before the expansion occurred. It is all very embarrassing for scientists because the great achievements of observational astronomy and theoretical physics have separately led to an impractical description of the initial state of the universe. The unusual state, then, predict is one of infinite size and density; the change from the infinities of density and size at time zero to the finite quantities encountered by the laws of the physical world we know, may lie beyond scientific comprehension, Sir Bernard suggested. He argues that man may have missed out his own connexion with the universe of atoms, stars and galaxies. One second after the beginning of the expansion of the fireball, when the temperature had fallen to a few thousand million degrees, there was a critical period which determined the ultimate abundance of helium and hydrogen in the universe. He considered the tiny difference in conditions which would have turned all the hydrogen into helium at this early stage of expansion. No galaxies, no stars, no life would have emerged. The existence of a remarkable and intimate relationship between man, the fundamental constants of nature and the initial moments of space and time, seem to be an inescapable conclusion.



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# THE TIMES

## BUSINESS NEWS

treasury lesson  
being  
precisely wrong,  
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### West Germany spells out terms of DM5,750m scheme to revive economy

By Peter Norman  
p. Aug 27

West Germany's Cabinet today set out the broad shape of a long-awaited public spending programme designed to help the economy—particularly the construction industry—over the winter months.

The programme has a volume of DM5,750m (about £1,065m). Armin Grünewald, a government spokesman, said it should be directly to investments in order of DM2,900m and indirectly to subsidize the economy for a further DM2,850m. He said that the programme would be a "biggest slice of the programme" about DM2,450m.

The programme would be a "biggest slice of the programme" about DM2,450m.

buried equally by the federal and state governments, will finance subsidies for the modernization of older housing, while Bonn and the federal states have allocated a total of DM2,900m to subsidize the financing of new home building for savers with the German building savings banks.

These two measures alone are expected by the programme's authors to result in an order volume of DM5,750m.

In addition, the federal government will place DM1,200m of orders with the building industry before the end of this year to develop its own investment projects, and a further DM600m will go to the Federal Labour Office so that it can preserve 60,000 jobs during the winter.

The programme is rounded off by a DM500m loan from Germany's European recovery programme funds designed mainly to augment its existing measures for improving the environment.

With unemployment well above the 1 million mark and rising, the government has given priority to spending plans that can be mobilized quickly, and most of the DM5,750m should have been allocated to specific projects by the end of this year.

The cabinet also decided on a DM15,150m supplementary budget to bring the federal finances for this year into order.

Alongside tax shortfalls of DM8,840m, which mainly re-

flect the economic recession this year, Bonn has had to allocate DM6,310m for extra spending, most of which (about DM5,090m) has been swallowed up by the labour office to pay unemployment benefits.

This supplementary budget, which brings the total level of federal government expenditure this year to DM16,140m, will be financed through borrowing on the capital market, and has been instrumental in raising the federal borrowing requirement this year to the record level of DM37,910m.

French reaction: The French public works sector is to be the main beneficiary of the government's reflationary package, details of which will be disclosed in September 4, M. Andre Rosier, a government spokesman, said after a cabinet meeting presided by President Valéry Giscard d'Estaing.

The recovery programme will include measures to stimulate consumption, especially in the household level, and steps to help small and medium-sized businesses, agriculture and crafts.

M. Rosier said the President had outlined two major requirements of the new measures. That they should rapidly create new employment to improve France's worsening unemployment situation, and that they should be considered as a once-and-for-all effort, in that no provision would be made in future budgets for similar moves.

### BSC plans offshoot to attract new industries

By Peter Hill

Government approval is being sought by the British Steel Corporation to set up a subsidiary which will channel millions of pounds into new industrial ventures in areas where steelmaking is being run down.

The company, as yet untitled, will be under the direction of Mr. Ron Smith, former Post Office trade union leader, who, as a BSC board member, was charged earlier this year with implementing measures to promote employment opportunities in localities where steelmaking is being contracted.

Initially the work of the company will be to attract industrial ventures to Scotland and Wales, but the work will be nationwide eventually, in some cases it will seek simply to interest both United Kingdom and overseas companies, and in some cases may take a direct investment in a project.

Key areas of potential interest are seen as Europe and the United States, and the BSC jobs teams which will come under the aegis of the company will be carrying out extensive canvassing of overseas companies.

The company will be working closely with industrial development organizations, including the proposed Scottish and Welsh Development Agencies and with groups like the Scottish Council (Development and Industry).

While in some respects the venture is seen as a dying off operation of existing activities, the company is expected to provide jobs for displaced workers, and the creation of the company has been given added impetus from the recession through which the steel industry is passing.

Agreement reached between the BSC and the steel industry unions on what is holding in the case of the BSC's labour force provide more immediate needs for new jobs in addition to those workers who will lose their jobs under the corporation's 10-year development programme involving the closure of outdated plants.

Meanwhile, it is expected that there will be an early resumption of talks at national level in an attempt to settle the pay dispute at the BSC's Llanwern works, which is holding up the commissioning of a large new blast furnace.

The 150 blast-furnace unit will operate the plant, which forms part of a £150m development programme at Llanwern, are demanding weekly rates of wages of £100 per £120, which includes bonuses against the BSC's offer of £85. Talks at local level have been deadlocked for 12 months, and it is understood that BSC offered to put the case to arbitration but the men rejected the offer.

Now the BSC plans to go ahead with the commissioning programme on the furnace despite the dispute.

### Ombudsman's UCS inquiry rebuff may force creditors to sue state

By Our Industrial Correspondent

Legal proceedings may be instituted against the Government by the creditors of Upper Clyde Shipbuilders in an attempt to recover more than £7.5m still owed to them after the collapse of the company four years ago.

Creditors of the company learnt yesterday that Sir Alan Marra, the Ombudsman, had rejected a request from Mr. Robert C. Smith, the UCS liquidator, to undertake an investigation into the Government's responsibility for meeting the outstanding debts to the ordinary creditors.

In his reply, Sir Alan said that on the papers he had received he had concluded that they did not provide a basis for a complaint which he could investigate under the terms of the Parliamentary Commissioner Act.

The Ombudsman—whose investigation into the Court Line

June, 1971, it had debts of £28m. From the outset it was clear that the 2,500 ordinary creditors would receive nothing because the funds available for distribution would only satisfy the claims of preferential and secured creditors—three Scottish banks and the National Westminster Bank.

The Ombudsman's decision not to investigate the Government's moral responsibility to meet the ordinary creditors' claims is a blow to many hopefuls, who had hoped that the request to Sir Alan was submitted by Mr. Alex Fletcher, Conservative MP for Edinburgh North, just before the parliamentary summer recess.

In his reply, Sir Alan said that on the papers he had received he had concluded that they did not provide a basis for a complaint which he could investigate under the terms of the Parliamentary Commissioner Act.

The Ombudsman—whose investigation into the Court Line

affair was rejected by the Government last month—said one of the reasons for his decision was that the Act specifically precluded any investigation by the Ombudsman if the complainant had a remedy in a court of law.

Secondly, Sir Alan also noted that, with certain exceptions, the Act precluded him from investigating individual action relating to contractual or other matters concerning a Government department.

He added: "I am advised that the Government's part in this matter clearly amounts to such action, and that it is not within my powers to investigate it."

A detailed investigation has already been carried out for the committee of inspection by Professor David Flint, Professor of Accountancy at Glasgow University, into the Government's role in the UCS affair under the terms of section 332 (1) of the Companies Act.

### Panel poised to impose sanctions on Crest

By Our Financial Staff

It appears that the Takeover Panel is bracing itself for a major showdown over the Ashbourne Investments affair at the group's extraordinary general meeting to be held on September 5.

Yesterday the Panel issued a statement from its executive committee confirming that Crest International, the finance group headed by Mr. Lionel Casper which forms part of the original bidding consortium, has not been able to repeat its previously given undertakings as regards voting its share of the consortium's holdings in Ashbourne at the meeting.

Following Crest's attempts to obtain a High Court injunction against it earlier this week, the Panel evidently expects that its interim ruling that Crest vote part of its stock against its own resolutions to replace the Ashbourne board will be ignored.

It pointed out yesterday that any such move would be regarded as a breach of the Takeover Code. But the Panel has no powers either to stop the meeting or to reinstate the directors.

A spokesman for the Panel said last night that all it could do would be to request stockbrokers, banks and other financial institutions to "withhold the facilities of the City" from the transgressors.

### Benn approval for Morpeth opencast mine

Approval for open cast coal mining operations on a 2,000-acre site at Buxterwell, near Morpeth, Northumberland has been given by Mr. Wedgwood Benn, Secretary of State for Energy.

The site is expected to yield about 12 million tons of coal over a 10-year period. Several local authorities and a number of individuals objected to the National Coal Board's plans for the area and a public inquiry was held in March.

Consumption of all forms of energy declined by over 6 per cent in the first half of this year, according to the Department of Industry's Energy Trends. The 1975 figures have been compared with consumption in 1973, as last year the three-day week distorted the returns.

The Department says that much of the reduction is probably due to the lower level of industrial activity which declined overall to a similar extent.

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### US may yield to reflation call

By Frank Vogel  
Washington, Aug 27

William Simon, the United States Secretary of the Treasury, is likely to respond favourably to demands by EEC finance ministers that America take additional action to stimulate its economy.

Former sources said Mr. Simon would probably assure EEC ministers here this week that President Ford had approved an extension of one-year tax cuts enacted by the Congress earlier this year, and might approve additional cash tax rebates late this year if he considered this necessary.

an additional \$7,700m (about £1,500m) will be added to potential consumer spending here.

But Mr. Simon and Dr. Arthur Burns, chairman of the Federal Reserve Board, are unlikely to accept Community demands that the United States should take still further measures—including easier money policies—the sources said.

They will stress that the country's economic recovery is proceeding at a pace greater than expected and that further measures, apart from the tax cut extensions, will place too much upward pressure on the rising rate of inflation.

To support his arguments Mr. Simon will be able to point to highly encouraging economic statistics published today.

These show that the composite index of leading indicators registered the sharpest upward gains in June and July since late 1972, with an advance of 1.7 per cent last month after a sharply revised 2.9 per cent gain in June.

The June index was revised upward by 1 per cent, the Commerce Department said.

The index now stands at 100.7 (1967 equals 100) and seven of the 10 indices which form the composite index showed gains in July. The sharpest advance seen was in the volume of new orders, and significant increases were registered for average hours worked and new building permits granted.

The main negative factors were the sharp rises in wholesale prices last month and a significant decline in the money supply. The composite index has now gained 11.5 per cent in the past five months, the largest such increase since the record 12 per cent rise registered in the five months to September, 1958.

Mr. Simon is also expected to tell the EEC finance ministers that President Ford is now willing to take part in a major economic summit meeting.

But sources said the Administration would like the summit, which would probably involve the government heads of Britain, the United States, Japan, France and West Germany, to take place late this year—possibly in late December.

allowing their meeting in this week, the EEC ministers are likely to call on United States at a meeting on Saturday, in informal meetings here over the weekend, to reflate in order to enable America to take a leading role in Europe and to enable economic recovery in the United States.

Mr. Simon will tell the EEC finance ministers that by extending the tax cuts for 1975

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### BI warning on risks of policy breaking down

By Malcolm Brown

warning came yesterday from the Confederation of British Industry that unless the limits of the new anti-inflation policy were applied consistently across industry, the policy could rapidly break down.

A warning was given in a 40-page guidelines drawn up by the confederation which are sent to all members. Making the document yesterday, Mr. Alan Swinden, its director-general, said that the policy had been introduced they had been critical and had said so. It's there. It's the policy. It's not and we want to make it clear.

He said the CBI had been ringing constantly with queries about the policy since it was announced.

It is a sense of timing, he said, that will arrive in the offices of the annual Trades

Union Congress—the CBI guide makes it clear that they are still at loggerheads with the TUC over interpretation of the pay limit.

Siding with the Government's interpretation of the £5 figure, the CBI says it is clear that the £5 is a maximum limit, which some employers may be unable to pay. Mr. Len Murray, TUC general secretary, said earlier this month that the £5 should be an entitlement.

Mr. Swinden said some people on a flat £5 would be getting more than they had ever had before. "This must be a matter for negotiation. Some people simply will not be able to afford £5," he said.

Mr. Swinden also emphasized that talks had not even started with the TUC yet on setting up machinery to vet joint submissions from unions and employers having difficulties in applying or observing the pay limit.

### Bankruptcy fears for Scottish trawler owners

Scotland's deep sea fishing industry is fighting for survival with more than a quarter of the trawler fleet laid up. Mr. John Craddock, president of the Scottish Trawlers' Federation, has admitted that there is "every possibility" of bankruptcy among some owners if present conditions continue.

They are caught between low quayside prices and the rising cost of fuel and gear.

This has meant that 35 trawlers out of the 130 in the Scottish fleet are now not fishing. Most are laid up, but 10 are employed by the North Sea oil industry to supply or stand by rigs.

Mr. Craddock gave a warning that it could mean trouble when international quotas—based on past catches—were fixed once a year. Companies were finding it difficult even to maintain the 12 to 15-year-old trawlers which were laid up, he said.

### Leyland stewards in key talks on participation

By R. W. Shakespeare

Negotiations opened yesterday on the far-reaching proposals for worker participation in management and control of the reshaped British Leyland, which emerged after the Ryder committee report.

The talks, between a group of 32 shop stewards representing manual and white-collar unions in all British Leyland plants and a 10-man team of senior executives, are expected to last until tomorrow afternoon. No public statements about progress will be made until the discussions end.

The central issues are bound to be the structure of the new joint decision-making bodies and the system of election, or appointment, of shop-floor representatives to the various committees that will have to be set up.

These talks cover only the car-making operations, and separate negotiations are planned for the bus and truck-making divisions. These could be delayed by a strike threat over a pay deal for 9,000 workers in the five bus and truck factories in Lancashire.

Workers have already imposed a ban on overtime and a policy of "non-cooperation", and have given notice of an all-out strike from September 15.

Meanwhile, shop stewards from all of Chrysler's plants in Britain will be meeting tomorrow to discuss the American-owned company's plans for worker participation, which include the appointment of shop-floor representatives to the main board.

The two sets of negotiations could mean that by the week-end two of the big four car companies in Britain will be on the way to implementing the most advanced "industrial democracy" plans seen in this country.

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### How the markets moved

As were easier, although it was light. Aged securities had a quiet day. The "effective" devaluation rate was 27.7 per cent.

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Lockwood Fds 5p to 55p  
Ladbroke 5p to 160p  
ADRI Fds 20p to 208p  
Nu-Swift Ind 1p to 12p  
Selection Tst 15p to 340p  
Stanley AC 5p to 73p  
Trans Paper 5p to 40p

Hammerston 5p to 325p  
Hestair 4p to 55p  
Johnson Matt 7p to 240p  
Philips Lamp 15p to 325p  
Shel 1p to 15p  
Town & City 1p to 365p  
Welkom 5p to 365p

Gold fell by 50 cents to \$161.375 an oz.  
SDR—£ was 1.18801 on Wednesday while SDR—£ was 0.56366.  
Commodities: Silver fell sharply. Rubber commodity index closed at 1.169.5 (1.183.3 on Tuesday).  
Reports, pages 25 and 26

THE POUND

Bank	Bank
Australia 5	1.70
Austria 5	39.50
Belgium 5	65.00
Canada 5	2.12
Denmark 5	11.30
Finland 5	8.15
France 5	9.45
Germany DM	5.35
Greece Dr	69.75
Hongkong \$	10.65
Italy Lr	1505.00
Japan Yn	235.00
Netherlands Gld	5.70
Norway Kr	11.85
Portugal Esc	56.50
S Africa Rd	1.71
Spain Ptas	125.25
Sweden Kr	9.40
Switzerland Fr	5.75
US \$	2.15
Yugoslavia Dnr	40.50

Notes: Small denomination bank notes (100, 200, 500) are quoted at a discount. Figures are for the London market. Figures are for the London market. Figures are for the London market.

### Japan takes steps to ease impact of Kohjin's fall

By David Blake

Japan's financial and political leaders moved rapidly yesterday to minimize the impact of the Kohjin group's collapse. Mr. Takeo Miki, the Prime Minister, held talks with the finance minister and the Bank of Japan while promising to be more flexible in its interpretation of credit restrictions where this is necessary to prevent failure.

The Dai-ichi Kangyo Bank, one of Kohjin's leading bankers, announced that it would buy up all the outstanding convertible debentures issued by Kohjin in September, 1971, which is expected to amount to 692.7m yen (about £1m).

This is, however, a fairly small sum in what looks like a very large ocean of Kohjin debt. Mr. Masaharu Nakamura, the managing director, said this amounted to 270,000 yen and is owed to 130 financial institutions, including four foreign banks.

Kohjin's problems seem to have been caused by over-ambitious expansion

### Motor exports worth 50 pc more than imports

By David Young

Britain earned more than twice as much from motor industry exports during July as it spent on imports. Figures issued by the Society of Motor Manufacturers and Traders show that July exports totalled a record £260m, 50 per cent more than in July last year.

It was the second successive month in which, despite a big fall in British car production, exports exceeded imports. In the same month imports rose by 30 per cent to £102m.

Commercial vehicle exports showed an 84 per cent gain to £47.7m while goods vehicle imports totalled £18.2m, 13.6 per cent less than in July, 1974.

Overseas sales of components, parts and accessories, including parts for use as original equipment in foreign vehicles, were 35 per cent up by value at £109.3m—almost twice the value of all car exports.

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BY THE FINANCIAL EDITOR

## Reinforcing cash flow at European Ferries

As well as double-locking the door against any predators, the European Ferries rights issue, being done on a one-for-two basis at 25p, should effectively remove the most of the remaining doubts as to the future liquidity pressures. The £5.9m being raised admittedly does not reduce the high gearing ratio by any appreciable amount but it should be a valuable reserve in cash flow required to meet the £23m of loans due for repayment within the next three years.

Certainly the interim results and even more so the forecast for the full year go some way towards dispelling this eventuality. With the aircraft operations now out of the way—last time these made losses of £607,000—it seems plain sailing for the remainder of this year. Cross-Channel traffic is up 23 per cent this summer with Townsend-Thoresen having the lion's share. So the forecast of an improvement in the pre-tax total from £4.2m to around £6m could well prove somewhat conservative.

The strongest support, however, lies in the unused depreciation on its ferry fleet totalling about £50m and sufficient to contain the tax charge to minimal proportions until the 1980s. This provides a considerable incentive to banks to buy and lease back ships—one such plan involving £5m or so is currently on the stocks and would provide additional liquidity for European Ferries. The fleet itself is an appreciable asset against sterling depreciation, helped by its comparative newness.

That the issue has not been underwritten comes as no surprise with the rights being worth 13p a share and an almost captive 52 per cent of the equity held by individuals who can participate in the concessionary fares. The yield of 5.5 per cent on the ex-rights price is not compelling but the shares, closing last night at 64½p, carry above average defensive qualities.

**Interim: 1975 (1974)**  
Capitalization £32m  
Sales £24.1m (£19.4m)  
Pre-tax profits £2.03m (£1.25m)  
Dividend gross 0.92p (0.82p)

### Associated Dairies

#### Strong rise in volume

Associated Dairies did not spoil the initial impact of its amazing second half advance with any details of exceptional items that pushed up the earnings increase. Working from the group's own figures, that take in, for instance, the benefit of an extra £350,000 in milk rebates and an extra week (the latter reported year ran for 53 weeks) we have sales up by 52 per cent against an unadjusted 52 per cent, and pre-tax up by just under a third against a stated advance more or less in line with turnover.

That said, there is still a good deal of healthy progress evident in the figures. Associated Dairies puts it down to substantial volume gains in the final half of the year—with the sales rise split fairly evenly between real and inflationary growth. Square footage has increased with openings totalling half-a-dozen for the full 12 months, but the group is claiming that the first-half openings made only a marginal impact in the second half, and that the group's older stores were clocking up the real gains—and here the volume was such that a great deal of the gross was going straight through to the net.

But it is questionable whether the group can keep up this pace in the current year. The fixation with the £6 annual wage increase is going to bear very hard on the retailers, particularly the lower margin ones, at one end, while there is evidence that consumers are going to trade down in a big way as life gets a little tougher. At 161p the shares are on a high,



Mr. Gerald Mobbs, who is to retire as chairman of Slough Estates next March: benefiting from the rights issue.

and possibly vulnerable racing with a P/E ratio of 14 and a yield of 1.2 per cent.

**Final: 1974-75 (1973-74)**  
Capitalization £63m  
Sales £221.3m (£158.2m)  
Pre-tax profits £9.88m (£7.41m)  
Earnings per share 12.97p (9.70p)  
Dividend gross 2.23p (2.02p)

### Johnson Matthey

#### The downturn intensifies

Johnson Matthey had turned down by 17 per cent in the final quarter of last year and the talk in the annual report was of it being "inescapable" that profits would be reduced while the present recession lasted.

The first quarter stage that has worked through in the form of a drop of 37 per cent, and for the moment it is hard to see what can buoy up the shares, 7p lower last night at 24½p, almost 70p below the level in June when the full year figures were announced.

Clearly it has been extremely difficult for JM to insulate itself against the problems besetting its major industrial customers, and excluding the banking division, sales were down from £85.4m to £68.3m. In the meantime, the three months since the year-end have seen loans creep up by close to another £2m to £29.4m. The question for the moment, then, is how far the first quarter still sees JM on the downward path. With the gold and silver markets proving themselves to be short on excitement at present it is hard to see much by way of support from the demand side of the business, and there cannot yet be much of a case for the shares until the real severity of the downturn is clear.

**1st Quarter: 1975-76 (1974-75)**  
Capitalization £42.1m  
Sales £68.3m (£85.4m)  
Pre-tax profits £2.81m (£4.44m)  
\*Excluding JM Bankers.

### Pearl Assurance

#### Problems with motor account

Pearl's motor insurance experience has persistently been worse than that of the larger composite groups and has deteriorated even further in the first half of 1975. That is what is behind the rise in the underwriting loss from £1.19m to £1.36m over the period, despite an improvement in the proper account. Small wonder then, that Pearl is now talking of quarterly rises in its motor rates and setting that trend with October rate increases to follow those in June.

**Interim: 1975 (1974)**  
Capitalization £72.1m  
Pre-tax profits £2.35m (£1.94m)  
Dividend gross 0.96p (0.87p)

With the aid of these underwriting losses for the year are forecast to be somewhat less than the £3.5m in 1974. Meanwhile the 40 per cent rise in investment income to £1.15m at half time (reflecting the 20 per cent increase in United Kingdom general branch premiums) suggests that the overall trading result this year may be considerably better than last year's loss of £1.24m.

There is little at this stage to indicate what this year's transfer to profit and loss account will be from the long-term insurance side. At least the rise of around a quarter in both ordinary branch and industrial branch new premiums is promising from the cash flow point of view.

Whether the life offices can hope to continue showing capital appreciation and earning income on these new funds on the scale they have done over the past few years is open to question however. That may not deter policyholders, even much but shareholders in the proprietary life groups, such as Pearl, have the option of switching into the composite sector now in order to benefit from the recovery in underwriting profits there. At very least they should look at yields in the life sector and here Pearl's prospective 7.6 per cent at 200p hardly shines against say that of 9.6 per cent on Refugia A at 195p.

**Interim: 1975 (1974)**  
Capitalization £74m  
Premiums written £12.59m (£11.58m)  
Pre-tax loss £0.21m (£0.37m)  
Dividend gross 5.38p (5.22p)

### Slough Estates

#### Maintaining momentum

As the property industry swings between disaster and recovery Slough Estates comes up with consistently improving figures. The latest set, for the half-year to end-June, are accompanied by a confident forecast of year-end figures "substantially higher" than those for 1974, and a promise—all things being equal—of a maximum increase in the dividend for the year.

All the same, the question now is whether or not to sell Slough's shares. Yesterday they rose 1p to 79p, at which level they are showing no discount at all on the asset backing as revealed by the balance sheet. Granted, that is probably some 30p short of realistic figures, but Slough is charging the interest on its United Kingdom development properties to the profit and loss account and did the bulk of its buying ahead of the peak in the property market; but even on that figure the discount is slight enough to suggest that Slough's shares have less ground to make than those of its competitors.

They also have less ground to lose than most of them. For in what is likely to be a very tough winter for the companies specializing in industrial property, which still have the worst of the property market to work through—Slough continues to benefit from the fact that a large proportion of its rents are linked to the wholesale price index. In addition the big gains on the ending of the rent freeze—worth £400,000 in the first half although the freeze did not come off until the end of the first quarter—have yet to come through.

Meantime the group's balance sheet, never highly geared, has benefited from the April rights issue of loan stock and a medium-term loan from FCI: there is relatively little development in hand in the United Kingdom, although there are plans to commence on the redevelopment of the Surrey site next year.

So the group looks set to maintain, though perhaps more slowly, its forward momentum, and the shares look safe but not, at the moment, interesting.

**Interim: 1975 (1974)**  
Capitalization £72.1m  
Pre-tax profits £2.35m (£1.94m)  
Dividend gross 0.96p (0.87p)

Except perhaps to a few sceptical laymen, economists and astrologers might not seem to be very similar. At first sight one aspires to scientific exactitude and precision, while the other is based on hunch, speculation and a great deal of amateur psychology.

However, the two subjects do have some things in common. In particular, they both at times try to predict the future and both are usually rather unsuccessful in their attempts.

Economic forecasting has been one of the rare growth industries of these troubled times. No one has compassed and financial institutions become increasingly interested in its output, but government departments have also felt obliged to set up distinct forecasting functions.

The Treasury, the powerhouse of British economic policy, has had a model since the early 1960s. It has had computer, capable of solving large simultaneous equation systems, since 1968. Aided by this electronic gadgetry, the model has expanded at a far more spectacular rate than the economy it pretends to describe, and now consists of about 700 equations and identities.

But all is not well with the Treasury model. In the last five or six years the Government's handling of the economy has not been very happy and its public pronouncements on the future behaviour of major economic variables have been usually wrong.

The latest example has been politically sensitive and, for that reason, more than usually newsworthy. "The pressure of demand in the United Kingdom will continue easing, and unemployment will continue to rise for the remainder of the year. I must warn the House that it could be touching a million..." by the end of the year, said Mr. Denis Healey, the Chancellor of the Exchequer, in the April Budget speech.

But unemployment has misbehaved. It amounts to one and a quarter million on some definitions and, on the central figures mentioned by Mr. Healey, seasonally adjusted for the United Kingdom, it reached 1,008,800 on August 11, several months before scheduled.

The abrupt and frightening change in labour market conditions has caused the Government by surprise, embarrassed ministers and caused some red faces among Treasury officials.

The Government was given advance warning by independent forecasters. In early 1974 Professor David Laider, then of the University of Manchester, forecast a sharp rise in unemployment in 18 months' time. His colleague, Professor Michael Parkin, was more definite. Unemployment, he said, would reach one million by July, 1975.

The Treasury's estimates, or, rather, "guesstimates"—of future inflation rates have been even more lamentable and the consequences have in some ways been just as disastrous. It has clearly been bewildered by the speed of pay and price increases since early 1974 and this has been the basic reason for runaway public spending and the present disarray in public sector finances.

But the Manchester economists said that 40 per cent inflation was inevitable some time before it happened. Professor Laider's evidence to the House of Commons expenditure committee on June 26, 1974, was quite firm on this point.

"We would be surprised," he said, "if the inflation rate stopped accelerating before mid-1975 on the basis of past form. That means the rate of inflation will be over 20 per cent as things are going now. I am not an ardent fan of the policy which would keep the rate below 20 per cent."

The contrast between the Treasury and these independent outside observers should be presented to the public. It is not a quarrel between devils and archangels. The Treasury is a large organization and it must be a struggle to reach a compromise between all the

doctrinal positions represented. Some officials may well have agreed with the Manchester economists' warnings when they were given.

But the fact remains that most officials did not, and that the Treasury as a whole was badly wrong.

What is the matter with its forecasting procedures? Is there some fundamental weakness in its approach or is the work on the right lines but incompetently performed?

The Manchester economists have one great advantage over the official model. They believe that "money matters" whereas most of the economists who developed the model regard money as an incidental extra to be ignored or remembered according to personal taste.

It is possible to find forecasters in the Treasury who deny any connection between

supply can be pumped up at unprecedented rates without influencing economic behaviour.

Moreover, there are plausible explanations for difficulty in accommodating monetary variables into forecasts. Equations are stable if the behaviour they describe is fairly continuous. But British monetary policy since the early 1960s has not created a continuous institutional framework.

On the contrary, policy has been adorned by succession of "ceilings" on lending and directives on credit priorities. These inevitably upset the equations even if the underlying behaviour is stable and the responses of firms and individuals to financial signals are regular and systematic.

In any case, to recall an old dictum, it is better to be

depend on a highly restricted range of "exogenous" variables, primarily world trade, public expenditure, tax rates and incomes policies.

Indeed, the success of monetary variables in the leading indicator approach surely casts doubt on the validity of a several-hundred equation computer approach which excludes them or refers to them only peripherally.

Interest in the leading indicator approach is likely to be furthered by a book, *Cyclical Indicators for the Postwar British Economy*, by Desmond O'Dea, published last month as an occasional paper for the National Institute of Economic and Social Research. It is particularly notable because it has come out under the aegis of the National Institute, a bastion of Keynesianism and the home of one of the biggest computer models in the United Kingdom.

A finding of the study is that the level of share prices is one of the best signals of future economic developments. A number of indicators are awarded points according to their frequency and consistency in preceding changes in output and employment.

The *Financial Times* dividend yields and ordinary share indices achieve some of the highest, points totals. Other high scorers are the balance of payments, the price of raw materials purchased by industries and the Confederation of British Industry survey of business opinion.

The level of share prices depends crucially on the conduct of monetary policy. The automatic reaction of any stock exchange in the world is to lower its price after an official induced increase in interest rates.

It is very difficult indeed to see how a conventional forecaster can both agree with the conclusions of leading indicator studies and believe that monetary policy is of little relevance to economic performance.

However, the National Institute and, no doubt, the Treasury are not especially concerned about the efficiency of monetary variables as predictive tools. Indeed, the National Institute is considering the preparation of its own leading indicators index to be published alongside its standard forecasts. It seems unlikely, all the same, that the civil servants in the Treasury will start looking at the level of share prices to help them in the formulation of policy.

Unless, and until, conventional models incorporate monetary variables they will fail to capture some of the most important influences on the economy. Instead, the models will have to rely, as they do now, on assumptions, mostly political assumptions, plucked out of the air.

The people who construct them will continue to see inflation as determined by erratic changes in the community's level of gross domestic product (or "union militancy") and output by violent and inexplicable swings in business optimism.

In short, until forecasters accept that "money matters" economics and astrology will have much in common, because, as laymen may have guessed, the latter are based on hunch, speculation and a great deal of amateur psychology.

\* Cambridge University Press, £3.50.

## Tim Congdon suggests that inaccurate economic predictions have arisen from the exclusion of monetary variables from forecasting models

the 25 per cent rates of money supply growth in 1972 and 1973 and the 25 per cent rates of inflation found in 1974 and 1975. If one looked hard enough, it might even be possible to find forecasters who deny any connection between the Barber money supply explosion and the property boom or the growth of secondary banks.

It may be that such events are too close to the events of the world to be of much interest to the Treasury. But official forecasters—and, indeed, private forecasters, who also exclude monetary variables from their models—do not have good reasons for adopting their position.

Their distrust of "monetarism" arises from a belief that it has only one equation, that which links the money supply and the money interest rate. For Treasury purposes such a narrow approach is not much help. The Government needs to know what the prospects are for the major demand categories of consumption, investment and exports, and for scores of minor sub-categories.

When monetary variables are incorporated in a detailed model they tend not to be as efficient for forecasting as traditional variables and, as a result, "Keynesian" kind. The relationships between interest rates, for example, and house-building or investment tend to be volatile and unreliable. They are not sufficiently stable for inclusion in a model which aims at exactitude and precision.

The "monetarists" do not dispute the variability of particular monetary relationships, although they insist on the central connection between money supply and money interest rates. They do not worry about it either.

Most "monetarists" reject the practice of "fine-tuning" the economy—that is, of trying to keep demand close to a hypothetical "full employment" level by marginal adjustments of government spending and taxation—as over-ambitious and basically misconceived.

They are also, on the whole, unenthusiastic about particular micro-interventions of the kind facilitated by detailed forecasting. These are some of the ways "monetarism" coincides with a liberal approach to politics and economics generally.

It should also be said, at a more technical level, that a close relationship, if it still is a powerful relationship, is not one in the Treasury believes—or, at least, one hopes that no one in the Treasury believes—that interest rates and other financial variables do not affect housebuilding and investment.

The fact that relationships jump up and down does not mean that the relationships are not there or that the money

roughly right than precisely wrong. Precise models without money seem to have been badly wrong in the last two or three years, while rough models with money seem to have been more or less right.

The growing disconnect between the full-blown several hundred-equation system type of forecasting has encouraged interest in a less formal, but much more pragmatic and simple, approach. This relies on the use of certain statistical series, advanced indicators of future economic developments.

The Central Statistical Office has developed the technique and begun to publish the results in its monthly *Economic Trends*. These consist of four levels of gross domestic product indicators—two indices of leading indicators, one of coincident and one of lagging.

If the index of leading indicators goes up it suggests that the economy is likely to pick up in several months' time; if the index of lagging indicators goes up it suggests that the economy was approaching a peak several months ago.

If full-blown computer forecasting has pretensions to being a science, leading indicator forecasting is very definitely an art—above all, an art of selection and emphasis. It is essential to select about 10 indicators which give a good guide to the way the economy is moving and to accord them the appropriate relative emphasis. Both selection and emphasis are improved if they spring from an integrated and complete theory of "how the economy works."

This is where "monetarism" or, at any rate, a belief that monetary and financial variables are crucial to economic behaviour, scores well. The four components of the first CSO leading indicator index are the number of housing starts, the rate of interest on three-month bank bills, the corporate sector's acquisition of financial assets and the *Financial Times* ordinary share index.

It is striking that all four are monetary. The significance of monetary policy could hardly be more spectacularly confirmed.

The same is true, though to a slightly lesser extent, of the second leading indicators index. This is influenced by four variables—the total increase in hire purchase debt, the number of insolvencies, wages per unit of output and new car registrations. Of these only one, wages per unit of output, is not directly affected by monetary conditions.

A "Keynesian" forecaster would have great trouble finding the success of these monetary variables into his worldview. To him the ups and downs in economic activity

## Phosphates generate tensions in the Sahar

Spain stands to lose its investment in the World Court at The Hague. Morocco's claims to the Sahar.

The World Court's decision, expected about the end of the year, will be a blow to Spain, which will decide whether to go to the World Court or to accept a previous assembly resolution to referendum in the colonial territory.

The estimated amount of quality phosphate ore area of 266,000 square metres is put at 1,700 which based on present consumption figures is to supply the world's need at least the next 10 years. It is of exceptional mineral content and advantage from a mine of view that it can be on the open-cast method.

Spainans refer to the phosphates in the Sahar as "dust not surprisingly at a price of 563 a tonne. Spanish officials said that the phosphates are a whole of Africa into a province" of the Sahar. The conflict is between Spain and because the Libya Polisario (Saharan Liberation Front) demand independence for the "province" of the Sahar. Algeria and Mauritania also campaigned for colonization of the Sahar.

Spain saw an increase in the number of deaths and several deaths and between the Polisario Spanish-backed Polisario National Union. Spain has promised a referendum under United Nations supervision among the population to determine the future of the colony, but it is off pending a UN vote.

Investment in the Sahar has been huge. The INI, a national industrial company, discovered in 1947, but not until the 1960s established the tremendous importance of the field. de Bu-Cras SA was for a capital of £30m, paid up, completely a INI. The cost of the machinery was more than the phosphate ore.

The phosphates are only source of income. The banks of the coast are rich in iron. Spain and Morocco are leading for more than about fishing rights.

At the moment the world's phosphate, American SA was the owner of all of it. Russia about 25 million ton but has to import it because its own production is not enough to meet its own needs.

Spain has with an auction of 16 million year is the world's largest producer, and should the Spanish Sahar, would virtual monopoly—a enough prize for King Hassan II of Morocco. He has never sold the Sahar. In such an event Spain would not hesitate to defend its interests as "Spanish national up territorial integrity."

Harry D.

Extracts from the Statement by the Chairman, Mr. C. I. O.E.E., circulated with the 1974 Accounts.

## EUCALYPTUS PULP MILLS LIMITED

For 1974 record profits have been earned. With primarily better trading conditions, the company has enjoyed the year, they are a real reason for the first fruits of the modernisation programme.

The past year has been a momentous one in the history of the company. The events that have taken place there are a saving grace for the company. Wages and salaries have risen by the average of 50% per employee in an effort to meet inflation which has been running at level in Portugal, further substantial increases have been granted in the current year.

Legislation to nationalise the wood pulp industry in Portugal has been announced and it is a matter of great concern to the Board that our operating subsidiary has been expropriated. It is British owned. It is hoped that this expropriation may be a reflection of the fact that substantially to the Portuguese economy by our continued 95% of our production which placed us twelfth in the published list of exporting companies for the country as a whole. Reference has been made in previous statements to holders of our shares to recommend to members the transfer of the company to Portugal. It will be readily understood that in view of the changed conditions, those plans have been discontinued.

A further sum of £268,000 has been invested in the forest during the year. Our planted land at the end of the year amounted to some 6,200 hectares (say 15,000 acres). The strong international market for wood pulp which developed by the fourth quarter of 1973 continued during the first nine months of 1974 and demand was so strong that entire output could have been sold twice over.

Pulp prices were raised for shipment during the first of 1974 and again in mid-summer for shipment during December 1974. However, by the fourth quarter of the year the gathering worldwide recession was casting its shadow before it and, although pulp prices rose again in December for shipment during the first half of 1975, it is now clear demand had begun to decline and has continued to particular during the second quarter of 1975.

We believe that now at mid-1975 we are just about at the bottom of the present trough in this industry's trade but we cannot expect any real improvement in demand or market situation improves in the U.S.A. and it may well turn of the year before this comes about.

At the Annual General Meeting held yesterday the Chairman announced that a second interim dividend of 12.48% (in the final dividend) had that morning been declared. Joint and several contract fulfillment guarantees which at some £3,200,000 at the year-end. The new wood-purchasing company to which these referred were finally resolved but the Calima Company had sustained of some £70,000 and some further loss was to be expected amount of the guarantees had been reduced by over a 3 pounds since the year-end and now stood at some £20.

It was clear that the results for the first half would be good but the Chairman emphasized that they must look for the second half.

Sir John Colville, C.B., C.V.O., has been co-opted to the Board.

## Business Diary: Bridlington bitter • Wilde's blocked account

The run-up to that annual festival of brotherly solidarity, the Trades Union Congress, begins in Blackpool today with a meeting of the policy-making General Council.

Afterwards many of the council's members will continue business on an unofficial basis over a plan which, in many cases, will be served by a landlord caught in the middle of—so to say—a bitter dispute involving the TUC's largest member, the Transport and General Workers' Union.

The dispute is between the National Association of Licensed House Managers and the TGWU's white-collar section ACTSS and it has already resulted in closures by the managers of pubs in the Midlands and Home Counties controlled by the Allied Breweries subsidiaries Ansells and Ind Coope.

In the Midlands NALHM members came out in protest at pressure being brought to bear on them by drymen to join the TGWU, and in the Home Counties ACTSS pub managers struck as part of their campaign to win bargaining rights from Ind Coope.

A recruitment battle has now developed between ACTSS and the NALHM, but the association has already started to head off the TGWU subsidiary with a weapon which for the

moment is only at the disposal of ACTSS—the TUC Bridlington Convention. Under the plan, which is being pushed among TUC affiliated unions.

The NALHM is doing this by conducting a ballot among its 14,000 members to find out if they are prepared to merge with the Association of Clerical and Computer Staffs (APEX) which has its territorial general secretary, Roy Grantham, on the TUC General Council. The ballot will take place in the first week in October and it is expected that the NALHM will be an autonomous section of APEX by January 1—and thus be able to take its dispute with the TGWU section before the TUC's Disputes Committee.

### Docile

Shareholders in Keyser Ullmann were surprisingly docile at yesterday's annual meeting, considering that last year's £82.5m provisions against bad debts bring the total set aside by the bank to £119m.

The room in Keyser's Milk Street headquarters were, admittedly, full to overflowing, but the mood was as much one of self-congratulation that Derek Wilde, formerly of Barclays Bank, was now in command and steering the bank into safer waters, as of



Derek Wilde yesterday: little ruffled.

recriminations about who might be responsible for bringing the bank to the present sorry state of affairs.

There were plenty of pointed questions, however, most of them from Abraham Crowther, a solicitor and former shareholder in Central & District Properties, which Keyser Ullmann took over. Crowther wanted to know more about the security against which loans had been made, and in particular he was anxious to know

more about the dealings between the bank and former directors of the company.

Who had given authority for these loans, he asked, and considering the circumstances, what were the £27,000 of compensation payments all about?

This last was the only question to ruffle Wilde's equanimity. The other he blocked sturdily, adding little to what has already appeared in the accounts.

But when Crowther pointed out that under section 190 of the Companies Act compensation to directors, namely Jack Dellal and Stanley Van Gelder, had to be approved by shareholders, it was left to Mr. T. K. Day, the secretary, to point out that this applied only to directors who still held office.

Both Dellal and Van Gelder had resigned when compensation was agreed, he said, so the question did not arise. But amid general murmurs from the floor, Wilde did concede that there seemed to be a loophole here.

### Hardly gushing

The BBC's oil opera version of what goes on in a North Sea gusher—*Oil Strike North*—got scathing enough treatment from Alan Cough in his review in *The Times* yesterday ("... they never penetrated the outer layer of cliché..."). But you should have heard some of the real oil

The most Esso would say was: "We thought the show of the North Sea was splendid."

BP, whose rig Sea Quest was identified by some sharper-eyed viewers as being towed into a high sea of melodrama involving collisions with tankers and ships and a near heaving over when anchoring in a gale, were more heated and eloquent.

Apparently, having helped the BBC with their previous oil marathon, *The Troubadours*, they agreed initially to give a hand with the new series. But that was before they saw the script.

John Collins, an oilman since 1951 and now a BP divisional manager much involved with maintaining the company's public image, reckons that compared with what goes on in the North Sea the BBC version was "just rubbish."

On Monday night's episode there was Michael Whitehead, the toughie from Houston, Texas, flown in from a Mexican vacation of hot sun and







## FINANCIAL NEWS AND MARKET REPORTS

## Foreign Exchange

The dollar closed mixed at the end of yesterday's foreign exchange trading in Europe. An increase in expectations of a Middle East interim peace agreement and news that United States leading indicators rose by 1.7 per cent in July, the fifth consecutive monthly rise, were the main factors supporting the United States dollar, dealers said.

A more considered assessment of the July American trade surplus, which caused sharp losses for the dollar on Tuesday, helped it yesterday.

The West German reflation package and supplementary budget had little impact on the market, having been discounted in advance, dealers said.

The dollar appeared set to resume its upward trend on the favourable interest rate differential with only the state of New York City finances casting a shadow over its advance, dealers added.

Sterling, however, still managed a 10-point rise against the dollar, to \$2.1105. The pound's "floating" devaluation rate was unchanged at 27.7 per cent. Gold fell 50 cents an ounce, to \$161.37.

## Spot Position of Sterling

Market	Rate
New York	2.1105
London	2.1105
Frankfurt	2.1105
Paris	2.1105
Geneva	2.1105
Zurich	2.1105
Basel	2.1105
Brussels	2.1105
Amsterdam	2.1105
Stockholm	2.1105
Copenhagen	2.1105
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Finland	2.1105
Iceland	2.1105
Portugal	2.1105
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Greece	2.1105
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Italy	2.1105
France	2.1105
Germany	2.1105
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